

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 006

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1100A0C880R  
Governor no. :

Cust. part No. : 3930154

Customer-spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power KW : 63.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 6.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

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Check tolerance  
cm3/1000S. :  $\pm$  3.0

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Spreed

Tolerance  
cm3/1000 strokes : 4.0

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Check tolerance  
cm3/1000S. : 6.5

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Rated speed rpm : 475

Rack travel in mm : 5.65  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 20.5

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spreed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.00

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#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 97.5

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Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

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#### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.00  
Rated speed rpm : 1220  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 6.00  
Rated speed rpm : 1220  
Tolerance 1/min :  $\pm$  15

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#### LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 19.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.15  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:



Rated speed rpm : 475  
rack travel mm : 5.65  
Tolerance mm :  $\pm$  0.10

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#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

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#### FUEL DELIVERY CHARACTERISTICS

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##### Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

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#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.65  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 064

Injection pump  
Pump designation : PES4A95D320/3RS2927  
EP type number : F 002 A10 017

Governor  
Governor design. : RSV475...1000A2C944R  
Governor no. : F 002 A20 245

Cust. part No. : 3933090

Customer-spec. information  
Customer : CDC  
Motor : 4BNA3.9  
Power KW : 40.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 7.60  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	67.5
<hr/>		
Tolerance cm3/1000 strokes	:	+ - 1.0
<hr/>		
Check tolerance cm3/1000S.	:	+ - 3.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	3.5
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Check tolerance cm3/1000S.	:	6.0
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Rated speed rpm	:	475
<hr/>		
Rack travel in mm	:	4.60
Tolerance mm	:	+ - 0.10
<hr/>		
Del. quantity cm3/1000 strokes	:	13.5
Tolerance cm3/1000 strokes	:	+ - 2.0
Check tolerance cm3/1000S.	:	+ - 4.5
<hr/>		
Spreed		
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Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	5.5
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#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
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Rack travel in mm	:	0.50
Tolerance mm	:	+ - 0.20
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governor spring pre-tension		
click setting x	:	3.25
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#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
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Aneroid pressure hPa	:	-
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Del. quantity cm3/1000 strokes	:	67.5
Tolerance cm3/1000 strokes	:	+ - 1.0
Check tolerance cm3/1000S.	:	+ - 3.0
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Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	6.0
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#### CONTROL LEVER

control lever position degree	:	95.0
tolerance degree	:	+ - 4.0

RATED SPEED		
rack travel mm	:	6.60
Rated speed rpm	:	1070
Tolerance 1/min	:	+ - 5

rack travel mm	:	4.00
Rated speed rpm	:	1090
Tolerance 1/min	:	+ - 5

rack travel mm	:	0.85
Tolerance mm	:	+ - 0.55
Rated speed rpm	:	1175

rack travel mm	:	4.00
Rated speed rpm	:	1090
Tolerance 1/min	:	+ - 15

#### LOW IDLE

control lever position degree	:	77.0
tolerance degree	:	+ - 4.0

Control lever difference		
Grad	:	18.0
tolerance degree	:	+ - 6.0

#### Setting point w/out bumper spring

Rated speed rpm	:	475
rack travel mm	:	4.10
Tolerance mm	:	+ - 0.10

Rated speed rpm	:	100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

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TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

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LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

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Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113

Combination No. : 0 400 074 883F2

Injection pump  
Pump designation : PES4M60C320RS185  
EP type number : 0 410 064 006

Governor  
Governor design. : RSF375/1900M78  
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601 D23 LA  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 17.00  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.7

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.7

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 3.5

Rated speed rpm : 375

Rack travel in mm : 6.00

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 6.5

Tolerance  
cm3/1000 strokes : +- 0.5

Speed  
Tolerance  
cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.00

Tolerance mm : +- 0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity  
cm3/1000 strokes : 59.5

Tolerance  
cm3/1000 strokes : +- 0.7

Check tolerance  
cm3/1000S. : +- 1.7

Speed  
Tolerance

cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 3.5

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2200

rack travel mm : 8.30

Tolerance mm : +- 0.20

Rated speed rpm : 2600

rack travel mm : 0.50

Tolerance mm : +- 0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

##### LOW IDLE

control lever

position degree : 12.0

tolerance degree : +- 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 6.00

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.20

Tolerance mm : +- 0.10

##### Load pick-up

Rated speed rpm : 250

rack travel mm : > 9.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.80

Tolerance mm : +- 0.05

Rated speed rpm : 1500

rack travel mm : 13.20

Tolerance mm : +- 0.10

Rated speed rpm : 1900

rack travel mm : 12.50

Tolerance mm : +- 0.10

Rated speed rpm : 900

rack travel mm : 11.15

Tolerance mm : +- 0.10

##### ADJUSTMENT TEST ADA/ALDA

## SETTING

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1600  
 rack travel mm : -0.25  
 Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 rack travel mm : -2.65  
 Tolerance mm :  $\pm$  0.10

Ref. pressure  
 ALDA / ADA hPa : 750  
 rack travel mm : -4.30  
 Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 58.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1900  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 55.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.2  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## HIGH IDLE

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 2200  
 rack travel mm : 8.30  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 31.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.2  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : > 20.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 54.3  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.5

End of test specification sheet

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#### LOW IDLE

Rated speed rpm : 375  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

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control lever  
position degree : > 42.00

control lever  
position degree : < 39.50

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#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

Rated speed rpm : 425

Rack travel in mm : 8.40  
Tolerance mm :  $\pm$  0.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Vacuum hPa : 450.0

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#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375  
Vacuum hPa : -450.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

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Edition : 18.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 074 883F1  
Injection pump  
Pump designation : PES4M60C320RS185  
EP type number : 0 410 064 006  
Governor  
Governor design. : RSF375/1900M78  
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601 D23 LA  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 2.05  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 21.00  
Tolerance mm : +- 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 17.00  
Tolerance : +- 0.20  
Check  
tolerance °NW : +- 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 59.5

Tolerance  
cm3/1000 strokes : +- 0.7

Check tolerance  
cm3/1000S. : +- 1.7

Speed  
Tolerance  
cm3/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Rated speed rpm : 375

Rack travel in mm : 6.00

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  0.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 5.00

Tolerance mm :  $\pm$  0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity

cm<sup>3</sup>/1000 strokes : 59.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  0.7

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  1.7

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance

cm<sup>3</sup>/1000S. : 3.5

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2200

rack travel mm : 8.30

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 2600

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

##### LOW IDLE

control lever

position degree : 12.0

tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 6.00

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.20

Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 250

rack travel mm :  $>$  9.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1500

rack travel mm : 13.20

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1900

rack travel mm : 12.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900

rack travel mm : 11.15

Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

## SETTING

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1600  
 rack travel mm : -0.25  
 Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 rack travel mm : -2.65  
 Tolerance mm :  $\pm$  0.10

Ref. pressure  
 ALDA / ADA hPa : 750  
 rack travel mm : -4.30  
 Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 58.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1900  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 55.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.2  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## HIGH IDLE

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 2200  
 rack travel mm : 8.30  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 31.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.2  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : > 20.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 54.3  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.5

End of test specification sheet

---

#### LOW IDLE

Rated speed rpm : 375  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.3  
Speed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

control lever  
position degree : > 42.00

control lever  
position degree : < 39.50

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 12.0  
tolerance degree : +- 2.0

Rated speed rpm : 425

Rack travel in mm : 8.40  
Tolerance mm : +- 0.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Vacuum hPa : 400.0

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375  
Vacuum hPa : -450.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 074 883F3  
Injection pump  
Pump designation : PES4M60C320RS185  
EP type number : 0 410 064 006  
Governor  
Governor design. : RSF375/1900M78  
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601 D23 LA  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 17.00  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.7

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.7

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 3.5

Rated speed rpm : 375

Rack travel in mm : 5.90

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 6.5

Tolerance  
cm3/1000 strokes :  $\pm$  0.5

Spreed  
Tolerance  
cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.00

Tolerance mm :  $\pm$  0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity  
cm3/1000 strokes : 59.5

Tolerance  
cm3/1000 strokes :  $\pm$  0.7

Check tolerance  
cm3/1000S. :  $\pm$  1.7

Spreed  
Tolerance

cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 3.5

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2200

rack travel mm : 8.30

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 2600

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

##### LOW IDLE

control lever

position degree : 12.0

tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.90

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.20

Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 200

rack travel mm : 13.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 5.90

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1500

rack travel mm : 13.20

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1900

rack travel mm : 12.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900

rack travel mm : 11.15

Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

## SETTING

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1600  
 rack travel mm : -0.25  
 Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 900  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 rack travel mm : -2.65  
 Tolerance mm :  $\pm$  0.10

Ref. pressure  
 ALDA / ADA hPa : 750  
 rack travel mm : -4.30  
 Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 58.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1900  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 55.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.2  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.7  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## HIGH IDLE

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 2200  
 rack travel mm : 8.30  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 31.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.2  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.2  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : > 20.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 54.3  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed

Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 8.5

End of test specification sheet

---

#### LOW IDLE

Rated speed rpm : 375  
Del. quantity  
cm3/1000 strokes : 7.8  
Check tolerance  
cm3/1000S. : +- 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

control lever  
position degree : > 42.00

control lever  
position degree : < 39.50

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 12.0  
tolerance degree : +- 2.0

Rated speed rpm : 425

Rack travel in mm : 7.50  
Tolerance mm : +- 0.80  
Del. quantity  
cm3/1000 strokes : 16.5  
Tolerance  
cm3/1000 strokes : +- 3.5  
Check tolerance  
cm3/1000S. : +- 4.5  
Vacuum hPa : 450.0

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375  
Vacuum hPa : -450.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 010 701  
Injection pump  
Pump designation : PES12P130A900RS3391  
EP type number : 0 412 030 700

Governor  
Governor design. :  
Governor no. :

Cust. part No. :

Customer-spec. information  
Customer : FINCANTIERI  
Motor : 1312 T 3-B  
Power kW : 625.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.00  
Tolerance mm : ± 0.50

Firing order : 1-12- 9- 4- 5  
: - 8- 11- 2- 3  
: - 10- 7- 6

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 15.00

Tolerance mm :  $\pm$  0.05

### LOW IDLE

Rated speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97

Test oil : ISO 4113

Combination No. : 0 402 076 816

Injection pump

Pump designation : PES6P120A72ORS3340

EP type number : 0 412 026 773

Governor

Governer design. : RSV650...1100P8A566

: -5

Governer no. : 0 421 833 601

Cust. part No. :

Customer-spec. information

Customer : NH

Power KW : 177.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 120

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Check

tolerance °NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 11.45  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025

Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 97.0

#### RATED SPEED

rack travel mm : 4.00

Rated speed rpm : 1100

Tolerance 1/min :  $\pm$  15

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067  
rack travel mm : 10.40

Rated speed rpm : 1097

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1250

Rated speed rpm : 1068

rack travel mm : 10.40

Rated speed rpm : 1098

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1069

rack travel mm : 10.40

Rated speed rpm : 1099  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1070  
rack travel mm : 10.40

Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1071  
rack travel mm : 10.40

Rated speed rpm : 1101  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1072  
rack travel mm : 10.40

Rated speed rpm : 1102  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

---

#### LOW IDLE

control lever  
position degree : 79.0

Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

#### Testing:

Rated speed rpm : 650  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

A23

Rated speed rpm : 700

---

#### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 1050  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

LOW IDLE

Rated speed rpm : 650  
  
Rack travel in mm : 4.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.97  
Test oil : ISO 4113

Combination No. : 0 402 630 811

Injection pump  
Pump designation : PE12P130A920/6LS7868  
EP type number : 0 412 630 804

Governor  
Governor design. : RQV400...1150PA1004  
Governor no. : 0 421 813 932

Cust. part No. :

Customer-spec. information  
Customer : IVECO-LANCIA  
Motor : 8292.43.003  
Power KW : 938.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1; 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 120  
Tolerance L/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 4- 9- 8- 5- 2  
: - 11- 10- 3- 6  
: - 7- 12

Phasing : 0-15-60-75-120-135  
: -180-195-240-255  
: -300-315

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.95  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 304.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 20.0

Check tolerance  
cm<sup>3</sup>/1000S. : 24.0

Rated speed rpm : 400

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 20.0

Check tolerance  
cm<sup>3</sup>/1000S. : 24.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1212  
guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400  
guide sleeve  
travel mm : 2.59  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 697  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 449

guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1400  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 114  
Rated speed rpm : 850

Rack travel in mm : 17.50  
Tolerance mm :  $\pm$  1.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 304.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 20.0

Check tolerance  
cm<sup>3</sup>/1000S. : 24.0

##### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.90  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1255  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

rack travel mm : 4.00



---

#### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  5.70

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 475

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 340  
rack travel mm : 8.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  7.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 24.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97  
Test oil : ISO 4113  
Combination No. : 0 402 646 665  
Injection pump  
Pump designation : PE6P130A720RS7354  
EP type number : 0 412 636 835

Governor  
Governor design. : RQV300...950PA1002  
: -3K  
Governor no. : 0 421 815 491

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8210.42K.3000

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1025  
guide sleeve  
travel mm : 9.00  
Tolerance mm : +- 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.64  
Tolerance mm : +- 0.20

Rated speed rpm : 764  
guide sleeve  
travel mm : 6.22  
Tolerance mm : +- 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.78  
Tolerance mm : +- 0.25

Rated speed rpm : 1330

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1190

Rack travel in mm : 11.00  
Tolerance mm : +- 2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 1010

Tolerance 1/min : +- 5

Check  
speed 1/min : +- 10

rack travel mm : 4.00  
Rated speed rpm : 1110

Tolerance 1/min : +- 15

Check  
speed 1/min : +- 20

rack travel mm : 0.50  
Tolerance mm : +- 0.50

Rated speed rpm : 1250

---

## LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.20

### Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 355

---

## TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.30

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 950  
Pressure hPa : 1000  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.40

### MEASUREMENT

Rated speed rpm : 950  
Pressure hPa : 290  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 500  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.05

---

### Start interlock

Rated speed rpm :  $>$  180  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  160  
Check  
speed 1/min :  $<$  240

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.30

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 32.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97  
Test oil : ISO 4113

Combination No. : 0 402 646 667

Injection pump  
Pump designation : PE6P120A32ORS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1278K  
Governor no. : 0 421 815 509

Cust. part No. : 1310221/1

## Customer-spec. information

Customer : DAF  
Motor : XF 315 M  
Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.40  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 3.80

Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1077  
guide sleeve  
travel mm : 10.24  
Tolerance mm : +- 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : +- 0.20

Rated speed rpm : 704  
guide sleeve  
travel mm : 6.53  
Tolerance mm : +- 0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm : +- 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1158

Rack travel in mm : 12.00  
Tolerance mm : +- 2.70

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 12.40  
Rated speed rpm : 1040  
Tolerance 1/min : +- 5  
Check  
speed 1/min : +- 10

rack travel mm : 4.00  
Rated speed rpm : 1145  
Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  6.60

#### Testing:

Rated speed rpm : 275  
rack travel mm : 3.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 8.55  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 520  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 210  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 342.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.80

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 17.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000s. :  $\pm$  6.0

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97

Test oil : ISO 4113

Combination No. : 0 402 646 677

## Injection pump

Pump designation : PE6P120A32ORS7361

EP type number : 0 412 626 939

## Governor

Governor design. : RQV275...1150PA1349K

Governor no. : 0 421 815 556

Cust. part No. : 13225G7

## Customer-spec. information

Customer : DAF

Motor : RS/GS 245 M

Power KW : 245.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 140

Tolerance l/h : ± 10.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.85

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 14.65

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 14.30

Tolerance mm : ± 0.05

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 258.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 16.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 5.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1217
guide sleeve	
travel mm	: 8.07
Tolerance mm	: ± 0.15

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.71
Tolerance mm	: ± 0.20

Rated speed rpm	: 940
guide sleeve	
travel mm	: 5.44
Tolerance mm	: ± 0.25

Rated speed rpm	: 520
-----------------	-------

guide sleeve	
travel mm	: 3.40
Tolerance mm	: ± 0.25

Rated speed rpm	: 1427
guide sleeve	
travel mm	: 12.00
Tolerance mm	: ± 0.25

Rated speed rpm	: 1520
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1384

Rack travel in mm	: 13.65
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 850
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 258.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever	
position degree	: 114.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 13.90
Rated speed rpm	: 1215
Tolerance 1/min	: ± 5
Check	
speed 1/min	: ± 10

rack travel mm	: 4.00
Rated speed rpm	: 1340

Tolerance 1/min : +- 15  
 Check  
 speed 1/min : +- 20  
 rack travel mm : 0.70  
 Tolerance mm : +- 0.70  
 Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
 position degree : 72.0  
 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
 CRT mm min. : > 7.00

Testing:

Rated speed rpm : 275  
 rack travel mm : 5.00  
 Tolerance mm : +- 0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 850  
 rack travel mm : 14.30  
 Tolerance mm : +- 0.05

Rated speed rpm : 1130  
 rack travel mm : 14.90  
 Tolerance mm : +- 0.05

Rated speed rpm : 1025  
 rack travel mm : 14.50  
 Tolerance mm : +- 0.10

Rated speed rpm : 650  
 rack travel mm : 13.20  
 Tolerance mm : +- 0.10

Rated speed rpm : 500  
 rack travel mm : 12.80  
 Tolerance mm : +- 0.10

Rated speed rpm : 1150  
 rack travel mm : 14.90  
 Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1130  
 Pressure hPa : 1500  
 rack travel mm : 14.90  
 Tolerance mm : +- 0.05

Rated speed rpm : 1130  
 Pressure hPa : -  
 rack travel mm : 3.40  
 Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 1130  
 Pressure hPa : 600  
 rack travel mm : 13.90  
 Tolerance mm : +- 0.05

Pressure hPa : 250  
 rack travel mm : 10.45  
 Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 1130  
 Del. quantity  
 cm3/1000 strokes : 242.0  
 Tolerance  
 cm3/1000 strokes : +- 2.0  
 Check tolerance  
 cm3/1000S. : +- 5.0

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 600  
 Del. quantity  
 cm3/1000 strokes : 131.0  
 Tolerance  
 cm3/1000 strokes : +- 1.0  
 Check tolerance  
 cm3/1000S. : +- 4.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.97  
Test oil : ISO 4113

Combination No. : 0 402 696 032

Injection pump  
Pump designation : PE6H120/320LS16  
EP type number : 0 412 626 005

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 369

Cust. part No. : 0250746502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 441 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(ALL P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.000  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 375.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050  
Uact V : 3.000  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 339.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

Rated speed rpm : 550  
Uact V : 2.800  
Prestroke solenoid  
Stroke mm : 8.70  
Del. quantity  
cm3/1000 strokes : 367.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 1.900  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  6.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 696 033  
Injection pump  
Pump designation : PE6H120/320LS14  
EP type number : 0 412 626 004  
Governor  
Governor design. : RE36  
Governor no. : 0 421 890 369

Cust. part No. : 0250745502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 441 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.000  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 375.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050  
Uact V : 3.000  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 339.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0

Rated speed rpm : 550  
Uact V : 2.800  
Prestroke solenoid  
Stroke mm : 8.70  
Del. quantity  
cm3/1000 strokes : 367.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.500
Tolerance Volt	:	+ 0.060
Check tolerance		
Volt	:	+ 0.060
Prestroke solenoid		
Stroke mm	:	8.00
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	25.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 3.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance		
cm <sup>3</sup> /1000s.	:	12.0

---

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	1.900
Prestroke solenoid		
Stroke mm	:	10.00
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	106.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ - 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 698 032  
Injection pump  
Pump designation : PE8H120/320LS3-1  
EP type number : 0 412 628 005  
Governor  
Governor design. : RE36  
Governor no. : 0 421 890 369

Cust. part No. : 0250746502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 442 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
Uact V : 2.800  
Prestroke solenoid  
Stroke mm : 7.40  
Del. quantity  
cm3/1000 strokes : 341.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 333.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0

Rated speed rpm : 550  
Uact V : 2.700  
Prestroke solenoid  
Stroke mm : 9.50  
Del. quantity  
cm3/1000 strokes : 351.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0

# TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.500
Tolerance Volt	:	+ 0.060
Check tolerance		
Volt	:	+ 0.060
Prestroke solenoid		
Stroke mm	:	8.00
Del. quantity		
cm3/1000 strokes	:	23.0
Tolerance		
cm3/1000 strokes	:	+ 3.0
Spread		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

---

## STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	1.900
Prestroke solenoid		
Stroke mm	:	10.00
Del. quantity		
cm3/1000 strokes	:	108.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 02.07.97

Test oil : ISO 4113

Combination No. : 0 402 746 601

## Injection pump

Pump designation : PES6P120A720RS7389

EP type number : 0 412 726 944

## Governor

Governer design. : RQ275/1050PA1021-4

Governer no. : 0 421 801 795

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FRANCE

Motor : 8460.41E.711

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : +- 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5

Tolerance bar : +- 0.1

## Overflow quantity

min. l/h : 145

Tolerance l/h : +- 10.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 5.15

Tolerance mm : +- 0.05

## Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

## Check

tolerance °NW : +- 0.75

## Start of delivery mark

## Check

tolerance °NW : +- 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.05

Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

rack travel mm : 10.00

Rated speed rpm : 1110

Tolerance 1/min : ± 8

rack travel mm : 4.00

Rated speed rpm : 1170

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1350

##### LOW IDLE

control lever

position degree : 73.0

tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > 6.10

##### Testing:

Rated speed rpm : 275

rack travel mm : 4.60

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 356

Tolerance 1/min : ± 20

##### TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 11.05

Tolerance mm : ± 0.05

Rated speed rpm : 600

rack travel mm : 11.10

Tolerance mm : ± 0.10



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 900  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 600  
Pressure hPa : 350  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.97

Test oil : ISO 4113

Combination No. : 0 402 796 033

## Injection pump

Pump designation : PES6H120/720LS18

EP type number : 0 412 726 010

## Governor

Governor design. : RE36

Governor no. : 0 421 890 370

Cust. part No. : 0250745702

## Customer-spec. information

Customer : MB-NFZ

Motor : OM 447 hla

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 EHAB

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

## Test nozzle holder assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

## (A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 7.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 6

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(ALL P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 800  
Uact V : 2.650  
Prestroke solenoid  
Stroke mm : 9.00  
Del. quantity  
cm3/1000 strokes : 302.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100  
Uact V : 2.750  
Prestroke solenoid  
Stroke mm : 6.00  
Del. quantity  
cm3/1000 strokes : 302.0  
Tolerance  
cm3/1000 strokes : +/- 5.0  
Check tolerance  
cm3/1000S. : +/- 8.0

Rated speed rpm : 550  
Uact V : 2.350  
Prestroke solenoid  
Stroke mm : 9.00  
Del. quantity  
cm3/1000 strokes : 272.0  
Tolerance  
cm3/1000 strokes : +/- 8.0  
Check tolerance  
cm3/1000S. : +/- 11.0

# TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.440
Tolerance Volt	:	+ 0.060
Check tolerance		
Volt	:	+ 0.060
Prestroke solenoid		
Stroke mm	:	9.00
Del. quantity		
cm3/1000 strokes	:	25.0
Tolerance		
cm3/1000 strokes	:	+ 3.0
Speed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	9.0

---

## STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	1.900
Prestroke solenoid		
Stroke mm	:	9.00
Del. quantity		
cm3/1000 strokes	:	104.0
Tolerance		
cm3/1000 strokes	:	+ 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.07.97  
Test oil : ISO 4113  
Combination No. : 0 402 066 710  
Injection pump  
Pump designation : PES6P110A120RS3357  
EP type number : 0 412 016 754

Governor  
Governor design. : RSV400...900P4A633  
Governor no. : 0 421 833 541

Cust. part No. : 3931255

Customer-spec. information  
Customer : CDC  
Motor : 6CTA ELITE  
Power KW : 207.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.35  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 213.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 7.5

Rated speed rpm	: 400
Rack travel in mm	: 6.20
Tolerance mm	: +- 0.20
Del. quantity cm <sup>3</sup> /1000 strokes	: 24.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 2.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.5
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring pre-tension click setting x	: 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
-----------------	-------

Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 213.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 7.5

#### CONTROL LEVER

control lever position degree	: 102.0
tolerance degree	: +- 4.0

RATED SPEED	
rack travel mm	: 12.30
Rated speed rpm	: 960
Tolerance 1/min	: +- 5

rack travel mm	: 6.40
Rated speed rpm	: 990
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1100

rack travel mm	: 6.40
Rated speed rpm	: 990
Tolerance 1/min	: +- 15

#### LOW IDLE

control lever position degree	: 77.0
tolerance degree	: +- 4.0

Control lever difference Grad	: 25.0
tolerance degree	: +- 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.70
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : < 19.00

Testing:

Rated speed rpm : 400  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.20

---

TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97  
Test oil : ISO 4113  
Combination No. : 0 402 736 907  
Injection pump  
Pump designation : PES6P120A120RS7342  
EP type number : 0 412 726 967  
Governor  
Governor design. : RQV450...1100PA1334K  
Governor no. : 0 421 815 549

Cust. part No. : 3931940

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power kW : 224.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.03  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.25  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 227.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 450
Rack travel in mm	: 6.40
Tolerance mm	: ± 0.20
Del. quantity cm <sup>3</sup> /1000 strokes	: 31.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1162
guide sleeve travel mm	: 7.49
Tolerance mm	: ± 0.15
Rated speed rpm	: 450
guide sleeve travel mm	: 1.33
Tolerance mm	: ± 0.20
Rated speed rpm	: 860
guide sleeve travel mm	: 4.55
Tolerance mm	: ± 0.25
Rated speed rpm	: 1560

guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 900
Del. quantity cm <sup>3</sup> /1000 strokes	: 227.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 117.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 13.20
Rated speed rpm	: 1170
Tolerance 1/min	: ± 15
rack travel mm	: 8.00
Rated speed rpm	: 1250
Tolerance 1/min	: ± 5
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

##### LOW IDLE

control lever position degree	: 76.5
tolerance degree	: ± 4.0

##### Control lever difference

Grad	: 40.5
tolerance degree	: ± 6.0

##### Setting point w/out bumper spring

Rated speed rpm	: 375
-----------------	-------

CRT mm min. : > 7.70

#### Testing:

Rated speed rpm : 450  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 525

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 900

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 400  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 300  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 390

Check  
speed 1/min : > 80

C04

Check  
speed 1/min : < 400

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

#### LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.97  
Test oil : ISO 4113

Combination No. : 0 402 744 806

Injection pump  
Pump designation : PES4P120A32ORS7431  
EP type number : 0 412 724 805

Governor  
Governor design. : RQV325...1500PA1333  
: -1K  
Governor no. : 0 421 815 555

Cust. part No. : 3393633

Customer-spec. information  
Customer : CDC  
Motor : 4BTA-A  
Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.90  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 15.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.5

Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Spread	
<hr/>	
Tolerance	
cm3/1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm3/1000S.	: 12.0
<hr/>	
Rated speed rpm	: 325
<hr/>	
Rack travel in mm	: 7.80
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 20.0
Tolerance	
cm3/1000 strokes	: +- 3.0
Check tolerance	
cm3/1000S.	: +- 5.0
Spread	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1555
guide sleeve	
travel mm	: 9.02
Tolerance mm	: +- 0.15

Rated speed rpm	: 325
guide sleeve	
travel mm	: 1.21
Tolerance mm	: +- 0.20

Rated speed rpm	: 1007
guide sleeve	
travel mm	: 5.41
Tolerance mm	: +- 0.25

Rated speed rpm	: 560
guide sleeve	
travel mm	: 3.15
Tolerance mm	: +- 0.25

Rated speed rpm	: 1970
-----------------	--------

C07

guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1500
Aneroid pressure	
hPa	: 900
Del. quantity	
cm3/1000 strokes	: 208.5
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 116.5
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 14.25
Rated speed rpm	: 1565
Tolerance 1/min	: +- 5

rack travel mm	: 5.50
Rated speed rpm	: 1720
Tolerance 1/min	: +- 15

rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1800

LOW IDLE

control lever	
position degree	: 75.0
tolerance degree	: +- 4.0

Control lever difference	
Grad	: 41.5
tolerance degree	: +- 6.0

Setting point w/out bumper spring

Rated speed rpm	: 275
-----------------	-------

CRT mm min. : > 8.10

#### Testing:

Rated speed rpm : 325  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1500  
rack travel mm : 15.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1500  
Pressure hPa : -

Rated speed rpm : 750  
Pressure hPa : -  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1500  
Pressure hPa : 570  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 500  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 7.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 796 813  
Injection pump  
Pump designation : PES6P120A720RS7356  
EP type number : 0 412 726 919  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 017

Cust. part No. : RE 61658

Customer-spec. information  
Customer : DEERE  
Motor : 6081 HF001  
Power KW : 205.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 077  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

°NW after s.o.d. : 9.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V



# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 1050  
Uact V : 3.030  
Del. quantity  
cm3/1000 strokes : 213.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700  
Uact V : 3.120  
Del. quantity  
cm3/1000 strokes : 237.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

### TEST POINT L1

Rated speed rpm : 450  
Uact V : 1.740  
Tolerance Volt : +/- 0.060  
Check tolerance  
Volt : +/- 0.060  
Del. quantity  
cm3/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 25.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.07.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 028

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV450...1100A0C905R  
Governor no. : F 002 A20 219

Cust. part No. : 3931398

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power kW : 72.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.95  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 68.0
<hr/>	
Tolerance cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm3/1000s.	: +- 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance cm3/1000s.	: 6.0
<hr/>	

Rated speed rpm	: 450
<hr/>	
Rack travel in mm	: 5.50
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 18.0
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000s.	: +- 4.5
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
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Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 68.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000s.	: +- 3.0
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 6.0

#### CONTROL LEVER

control lever position degree	: 112.0
tolerance degree	: +- 4.0

#### RATED SPEED

rack travel mm	: 7.90
Rated speed rpm	: 1175
Tolerance 1/min	: +- 5

rack travel mm	: 5.20
Rated speed rpm	: 1225
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1500

rack travel mm	: 5.20
Rated speed rpm	: 1230
Tolerance 1/min	: +- 15

#### LOW IDLE

control lever position degree	: 93.0
tolerance degree	: +- 4.0

#### Control lever difference

Grad	: 19.0
tolerance degree	: +- 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 450
rack travel mm	: 5.00
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 8.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.06.97  
Test oil : ISO 4113  
  
Combination No. : F 002 A0Z 068  
  
Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : F 002 A10 019  
  
Governor  
Governor design. : RSV450...90QA7C946R  
Governor no. : F 002 A20 246

Cust. part No. : 3933101

Customer-spec. information  
Customer : CDC  
Motor : 6BTA  
Power KW : 132.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 093  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.35  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	134.5
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 3.0
Speed		
Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

Rated speed rpm	:	450
Rack travel in mm	:	7.50
Tolerance mm	:	+ 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	22.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 2.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.5
Speed		
Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20
governor spring pre-tension click setting x	:	3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	900
-----------------	---	-----

Aneroid pressure hPa	:	-
Del. quantity cm <sup>3</sup> /1000 strokes	:	134.5
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 3.0
Speed		
Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	112.5
tolerance degree	:	+ 4.0

RATED SPEED		
rack travel mm	:	12.30
Rated speed rpm	:	955
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	995
Tolerance 1/min	:	+ 5

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1075

rack travel mm	:	4.00
Rated speed rpm	:	1005
Tolerance 1/min	:	+ 15

LOW IDLE

control lever position degree	:	87.0
tolerance degree	:	+ 4.0

Control lever difference Grad	:	25.5
tolerance degree	:	+ 6.0

Setting point w/out bumper spring

Rated speed rpm	:	450
rack travel mm	:	7.00
Tolerance mm	:	+ 0.10

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 7.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.07.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 069

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV500...110GA2C947R  
Governor no. : F 002 A20 248

Cust. part No. : 3933623

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

\*NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 500

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 21.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.97  
Test oil : ISO 4113  
Combination No. : 0 401 870 070  
Injection pump  
Pump designation : PE12P110A520/5RS408  
EP type number : 0 411 810 039  
Governor  
Governor design. : RSUV300...1150POA324  
: DR  
Governor no. : 0 421 831 008  
Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D,DT,TBD232V12

## TEST BENCH REQUIREMENTS

Inlet line : 3.1u3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1-12- 9- 4- 5- 8  
: - 11- 2- 3- 10  
: - 7- 6  
Phasing : 0-30-60-90-120-150  
: -180-210-240-270  
: -300-330  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 137.5
<hr/>	
Tolerance cm3/1000 strokes	: +- 1.5
<hr/>	
Check tolerance cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 7.5
<hr/>	

Rated speed rpm	: 300
Rack travel in mm	: 7.30
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 26.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000S.	: +- 5.5
Spreed	
Tolerance cm3/1000 strokes	: 4.5
Check tolerance cm3/1000S.	: 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: +- 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 137.5

Tolerance cm3/1000 strokes	: +- 1.5
Check tolerance cm3/1000S.	: +- 4.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 7.5

##### CONTROL LEVER

control lever position degree	: 61.0
tolerance degree	: +- 4.0

##### RATED SPEED

rack travel mm	: 11.20
Rated speed rpm	: 1195
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1250
Tolerance 1/min	: +- 15

rack travel mm	: 1.00
Tolerance mm	: +- 0.70
Rated speed rpm	: 1400

rack travel mm	: 4.00
Rated speed rpm	: 1260
Tolerance 1/min	: +- 15

##### LOW IDLE

control lever position degree	: 21.0
tolerance degree	: +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 300
rack travel mm	: 6.80
Tolerance mm	: +- 0.10

##### Testing:

Rated speed rpm	: 300
rack travel mm	: 7.30
Tolerance mm	: +- 0.10

rack travel mm	: 2.00
Rated speed rpm	: 450
Tolerance 1/min	: +- 30

---

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97

Test oil : ISO 4113

Combination No. : 0 402 076 801A

## Injection pump

Pump designation : PES6P120A1320/5RS337

: 2Y

EP type number : 0 412 026 793

## Governor

Governer design. : RSV350...1050P1A641

Governer no. : 0 421 833 553

Cust. part No. : 1382923 - Version A

## Customer-spec. information

Customer : SCANIA

Motor : DSI1172A,-C1157A

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Vibration

damper

(RoBo diaphragm) : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 104

## Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.65  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 34.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 84.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 14.60

Rated speed rpm : 783  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 751  
rack travel mm : 14.60

Rated speed rpm : 789  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 752  
rack travel mm : 14.60

Rated speed rpm : 790  
Tolerance 1/min :  $\pm$  4



rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 14.60

Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 14.60

Rated speed rpm : 792  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 14.60

Rated speed rpm : 793  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 15.65  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 15.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 240  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 450  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97  
Test oil : ISO 4113  
Combination No. : 0 402 076 8018  
Injection pump  
Pump designation : PES6P120A1320/5RS337  
: 2Y  
EP type number : 0 412 026 793  
Governor  
Governor design. : RSV350...1050P1A641  
Governor no. : 0 421 833 553

Cust. part No. : 1382923 - Version B

Customer-spec. information  
Customer : SCANIA  
Motor : DSI1172A,-C1157A

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.55  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 238.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 7.0

Spreed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

Rack travel in mm : 6.00  
Tolerance mm : +- 0.20

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : +- 4.0

Check tolerance  
cm3/1000S. : +- 6.0

Spreed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 238.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 7.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 34.0  
tolerance degree : +- 4.0

control lever  
position degree : 84.0  
tolerance degree : +- 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 14.50

Rated speed rpm : 788  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 850

Rated speed rpm : 751  
rack travel mm : 14.50

Rated speed rpm : 789  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 850

Rated speed rpm : 752  
rack travel mm : 14.50

Rated speed rpm : 790  
Tolerance 1/min : +- 4

rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 14.50

Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 14.50

Rated speed rpm : 792  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 14.50

Rated speed rpm : 793  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 15.55  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 15.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 240  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 450  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 03.07.97

Test oil : ISO 4113

Combination No. : 0 402 076 801C

Injection pump

Pump designation : PES6P120A1320/5RS337

: 2Y

EP type number : 0 412 026 793

Governor

Governer design. : RSV350...1050P1A641

Governer no. : 0 421 833 553

Cust. part No. : 1382923 - Version C

## Customer-spec. information

Customer : SCANIA

Motor : DSI1172A,-C1157A

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Tolerance bar : +- 0.1

Test nozzle holde  
assembly

: 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 4.45

Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.30

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.85  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

D04

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 34.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 84.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 14.80

Rated speed rpm : 788  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 751  
rack travel mm : 14.80

Rated speed rpm : 789  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 752  
rack travel mm : 14.80

Rated speed rpm : 790  
Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 14.80

Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 14.80

Rated speed rpm : 792  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 14.80

Rated speed rpm : 793  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 15.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 15.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 240  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 450  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.07.97  
Test oil : ISO 4113

Combination No. : 0 402 076 802A

Injection pump  
Pump designation : PES6P120A1320/5RS337  
: 3  
EP type number : 0 412 026 794

Governor  
Governor design. : RSV350...1050P8A643  
Governor no. : 0 421 833 555

Cust. part No. : 1385930 - Version A

Customer-spec. information  
Customer : SCANIA  
Motor : DSI1171A,-C1156A

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700



Rack travel in mm : 14.55  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 54.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.50

Rated speed rpm : 1095

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1190

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1210

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 23.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 410  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 670  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 076 811A  
  
Injection pump  
Pump designation : PES6P120A1320/5RS338  
: 0  
EP type number :  
  
Governor  
Governor design. : RSV350...1100P8A664  
Governor no. :

Cust. part No. : 1393864 - Version A

Customer-spec. information  
Customer : SCANIA  
Motor : DS9 93M, DSC9 47A

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.45  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

## Start of delivery mark

Tolerance : +- 0.10  
Check  
tolerance °NW : +- 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.85  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 6.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### CONTROL LEVER

control lever

position degree : 56.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 1145

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1230

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1250

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 24.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 300  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 540  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 076 811B  
  
Injection pump  
Pump designation : PES6P120A1320/5RS338  
: 0  
EP type number : 0 412 026 800  
  
Governor  
Governor design. : RSV350...1100P8A664  
Governor no. : 0 421 833 584

Cust. part No. : 1393864 - Version B

## Customer-spec. information

Customer : SCANIA  
Motor : D59 93M,D5C9 47A

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm :  $\pm$  0.05

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 6.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 59.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 109.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1145

Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1245

Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 27.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

### Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm 0.10$

### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.35  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1100  
rack travel mm : 12.35  
Tolerance mm :  $\pm 0.10$

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.35  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm :  $\pm 0.20$

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 230  
rack travel mm : 11.15  
Tolerance mm :  $\pm 0.15$

Pressure hPa : 310  
rack travel mm : 11.65  
Tolerance mm :  $\pm 0.05$

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1100  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 4.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97  
Test oil : ISO 4113  
Combination No. : 0 402 076 812A  
Injection pump  
Pump designation : PES6P120A1320/5RS338  
: 1  
EP type number : 0 412 026 801  
Governor  
Governor design. : RSV350...1100P1A666  
Governor no. : 0 421 833 585  
Cust. part No. : 1393867 - Version A

Customer-spec. information  
Customer : SCANIA  
Motor : DS9 92A/95M

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Vibration  
damper  
(RoBo diaphragm) : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1 688 901 104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 16.35  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 217.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 7.0

Spreed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

Rack travel in mm : 6.00  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : +- 4.0

Check tolerance  
cm3/1000S. : +- 6.0

Spreed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm3/1000 strokes : 217.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 7.0

Spreed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 34.0  
tolerance degree : +- 4.0

control lever  
position degree : 84.0  
tolerance degree : +- 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 15.30

Rated speed rpm : 788  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 850

Rated speed rpm : 751  
rack travel mm : 15.30

Rated speed rpm : 789  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 850

Rated speed rpm : 752  
rack travel mm : 15.30

Rated speed rpm : 790  
Tolerance 1/min : +- 4

rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 15.30

Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 15.30

Rated speed rpm : 792  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 15.30

Rated speed rpm : 793  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 16.35  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 16.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 340  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 740  
rack travel mm : 15.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97  
Test oil : ISO 4113  
Combination No. : 0 402 678 832a  
Injection pump  
Pump designation : PE8P120A720LS7189  
: -10  
EP type number : 0 412 628 893  
Governor  
Governor design. : RSV350...1050P8A652  
Governor no. : 0 421 833 569

Cust. part No. : 1391878 - Version B

Customer-spec. information  
Customer : SCANIA  
Motor : DS(C,I)14...A

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration  
damper  
(RoBo diaphragm) : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.45  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.95  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 7.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 4.60

Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 6.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 7.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree : +- 4.0

control lever  
position degree : 107.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 12.90

Rated speed rpm : 1095

Tolerance 1/min : +- 5

Check  
speed 1/min : +- 10

rack travel mm : 4.00

Rated speed rpm : 1205

Tolerance 1/min : +- 15

Check  
speed 1/min : +- 20

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1305

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : +- 4.0

control lever  
position degree : 26.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 4.10

Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 420  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 630  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 678 8320  
  
Injection pump  
Pump designation : PE8P120A720LS7189  
: -10  
EP type number : 0 412 623 893  
  
Governor  
Governor design. : RSV350...1050P8A652  
Governor no. : 0 421 833 569

Cust. part No. : 1391878 - Version C

Customer-spec. information  
Customer : SCANIA  
Motor : DS(C,I)14...A

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration  
damper  
(RoBo diaphragm) : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 8.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

Rated speed rpm	: 350
Rack travel in mm	: 4.60
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 21.0
Tolerance	
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000S.	: + 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 6.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 271.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 8.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

#### CONTROL LEVER

control lever	
position degree	: 57.0
tolerance degree	: + 4.0

control lever	
position degree	: 107.0
tolerance degree	: + 4.0

#### RATED SPEED

rack travel mm	: 13.40
Rated speed rpm	: 1095
Tolerance 1/min	: + 5
Check	
speed 1/min	: + 10

rack travel mm	: 4.00
Rated speed rpm	: 1210
Tolerance 1/min	: + 15
Check	
speed 1/min	: + 20

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1360

#### LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: + 4.0

control lever	
position degree	: 26.0
tolerance degree	: + 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 4.10
Tolerance mm	: + 0.10

Testing:



Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 420  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 630  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 249.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.07.97  
Test oil : ISO 4113

Combination No. : 0 402 678 835

Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860

Governor  
Governor design. : RSV350...1050POA673  
Governor no. : 0 421 833 590

Cust. part No. : 0270746802

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM442LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 15.30  
Tolerance mm : ± 0.05

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 272.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 350
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring	
pre-tension	
click setting x	: 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
-----------------	--------

Aneroid pressure	
hPa	: 1200
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 272.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever	
position degree	: 96.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 1075
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1150
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1400

##### LOW IDLE

control lever	
position degree	: 75.0
tolerance degree	: ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.50
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##### Testing:

Rated speed rpm	: 350
rack travel mm	: 5.00
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 395
Tolerance 1/min	: ± 30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 400  
rack travel mm : 1.70  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1000  
rack travel mm : 6.65  
Tolerance mm :  $\pm$  0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.97

Test oil : ISO 4113

Combination No. : 0 402 744 801

## Injection pump

Pump designation : PES4P120A32ORS7380

EP type number : 0 412 724 802

## Governor

Governer design. : RQV275...1200PA1232K

Governer no. : 0 421 815 469

Cust. part No. : CCEP 5149B 66-237

## Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 04-02-26 B4

Power KW : 110.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

## Overflow quantity

min. l/h : 105

Tolerance l/h : ± 10.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

°NW before FB : 0.30

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

betw. rack trav.

mm : 21.00

and maximum rack

travel : 11.00

Difference ° CS : 1.50

---

#### CRT ZERO POSITION

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1200

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

---

Rack travel in mm : -6.80  
Tolerance mm :  $\pm$  0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1272  
guide sleeve  
travel mm : 9.31  
Tolerance mm :  $\pm$  0.15

---

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.52  
Tolerance mm :  $\pm$  0.20

---

Rated speed rpm : 894  
guide sleeve  
travel mm : 6.60  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 560  
guide sleeve  
travel mm : 4.01  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1482

---

Rack travel in mm : 11.70  
Tolerance mm :  $\pm$  1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree :  $\pm$  4.0

---

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1265

---

Tolerance 1/min :  $\pm$  15  
 rack travel mm : -8.80  
 Rated speed rpm : 1410  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : -12.30  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1500

#### LOW IDLE

control lever  
 position degree : 253.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. :  $<$  -4.70

Testing:

Rated speed rpm : 325  
 rack travel mm : -6.80  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 390

#### TORQUE CONTROL

Rated speed rpm : 1200  
 Rated speed rpm : 700  
 rack travel mm : -1.15  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 350  
 rack travel mm : -2.90  
 Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1200  
 Pressure hPa : 1200  
 Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : -4.10  
 Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1200  
 Pressure hPa : 200  
 rack travel mm : -3.40  
 Tolerance mm :  $\pm$  0.20  
 Pressure hPa : 320  
 rack travel mm : -2.75  
 Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $>$  155  
 Rated speed rpm :  $<$  275  
 Check  
 speed 1/min :  $>$  135  
 Check  
 speed 1/min :  $<$  285

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1200  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 240.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 161.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 90.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : -6.80

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 40.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 744 808  
  
Injection pump  
Pump designation : PES4P120A32ORS7402  
EP type number : 0 412 724 804  
  
Governor  
Governor design. : RQV275...1200PA1257  
: -1K  
Governor no. : 0 421 815 553  
  
Cust. part No. : CCEP5166 66-238

## Customer-spec. information

Customer : RENAULT V.I.  
Motor : MIDR 04-02-26 A4  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 071  
  
Inlet press. bar : 2.5  
  
Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -10.30  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 13.00  
Difference ° CS : 2.40

---

#### CRT ZERO POSITION

Rack travel in mm : 13.40  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : -8.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1260

guide sleeve  
travel mm : 10.32

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.52  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 938  
guide sleeve  
travel mm : 6.86  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1450

Rack travel in mm : 12.40  
Tolerance mm :  $\pm$  1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 298.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1245

Tolerance 1/min :  $\pm$  5  
rack travel mm : -9.40  
Rated speed rpm : 1405  
Tolerance 1/min :  $\pm$  15

rack travel mm : -12.90  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 252.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. :  $<$  -7.40

#### Testing:

Rated speed rpm : 325  
rack travel mm : -8.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 390

---

#### TORQUE CONTROL

Rated speed rpm : 1200

Rated speed rpm : 850  
rack travel mm : -1.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : -6.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 700  
rack travel mm : -1.80  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200

Rated speed rpm : 1200  
Pressure hPa : -  
rack travel mm : -3.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 200  
rack travel mm : -2.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 440  
rack travel mm : -1.10  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  130  
Rated speed rpm :  $<$  275

Check  
speed 1/min :  $>$  110  
Check  
speed 1/min :  $<$  285

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 249.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : -8.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 09.07.97

Test oil : ISO 4113

Combination No. : 0 402 746 607

## Injection pump

Pump designation : PES6P120A720RS7409

EP type number : 0 412 726 956

## Governor

Governer design. : RQV450...1100PA1270

Governer no. : 0 421 814 172

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FRANCE

Motor : 8465.41.014

Power KW : 190.0

## TEST BENCH REQUIREMENTS

Inlet Line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : +- 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5

Overflow quantity

min. l/h : 185

Tolerance l/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 5.15

Tolerance mm : +- 0.05

Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : +- 0.50

Check  
tolerance °NW : +- 0.75

## Start of delivery mark

Tolerance : +- 0.10

Check  
tolerance °NW : +- 0.50

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1164  
guide sleeve  
travel mm : 7.81  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 450  
guide sleeve  
travel mm : 2.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 856  
guide sleeve  
travel mm : 5.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.81  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1550  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 8.40  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.90  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1270  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350

CRT mm min. :  $>$  6.80

#### Testing:

Rated speed rpm : 450  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 430

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 700  
Pressure hPa : 900  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
Pressure hPa : -  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 400  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.07.97  
Test oil : ISO 4113

Combination No. : 0 402 746 610

Injection pump  
Pump designation : PES6P120A720RS7409  
EP type number : 0 412 726 956

Governor  
Governor design. : RQV450...1050PA1277  
Governor no. : 0 421 814 173

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8465.41.016  
Power KW : 186.0

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 180  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.50

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.55  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110  
guide sleeve  
travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 2.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 836  
guide sleeve  
travel mm : 5.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.81  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1550  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1375

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.70

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.50  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1550

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
CRT mm min. : > 6.70

#### Testing:

Rated speed rpm : 450  
rack travel mm : 5.20  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 440

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 11.55  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 11.60  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 900  
rack travel mm : 11.55  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 10.85  
Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 360  
rack travel mm : 11.30  
Tolerance mm : +- 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 203.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 178.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

---

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 120.0  
Tolerance  
cm3/1000 strokes : +- 15.0  
Check tolerance  
cm3/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 450  
  
Rack travel in mm : 5.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 22.0

Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 846 081  
  
Injection pump  
Pump designation : PE6P120A32ORS8044  
EP type number : 0 412 826 036  
  
Governor  
Governor design. : RQV300...950PA1355K  
Governor no. : 0 421 815 962

Cust. part No. : 11127026  
: -P02 V.08/96

Customer-spec. information  
Customer : VCE  
Motor : TD122KLE  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 11.00  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.20

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 80.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1037  
guide sleeve  
travel mm : 9.86  
Tolerance mm : +- 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.61  
Tolerance mm : +- 0.20

Rated speed rpm : 773  
guide sleeve  
travel mm : 6.81  
Tolerance mm : +- 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.00  
Tolerance mm : +- 0.25

Rated speed rpm : 1280  
guide sleeve  
travel mm : 13.50

Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 11.62  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 269.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree : +- 4.0

control lever  
position degree : 118.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1015  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1210

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  6.56

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 1500  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 570  
rack travel mm : 2.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 250  
rack travel mm : 0.20  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

##### Aneroid pressure

hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

#### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 890 301  
Injection pump  
Pump designation : PE12P120A520LS8525  
EP type number : 0 412 820 203  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 040

Cust. part No. : 51.11103-7552

## Customer-spec. information

Customer : MAN  
Motor : D 2842 LE 404  
Power kW : 956.0

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1A- 5-9A- 8- 3A- 4  
: -11A- 10- 2A- 6  
: - 7A

Phasing : 0-15-60-75-120-135  
: -180-195-240-255  
: -300-315  
Tolerance : ± 0.50

Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 1150  
Uact V : 3.360  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 332.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 500  
Uact V : 2.220  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 9.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger

barrel assemblies.

Rated speed rpm : 500  
Uact V : 1.940  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  0.1

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Rated speed rpm : 500  
Uact V : 2.160  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### TEST POINT L1

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 300  
Uact V : 1.600  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.080  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.07.97  
Test oil : ISO 4113

Combination No. : 0 403 246 056

Injection pump  
Pump designation : PES6MW100/720RS1527  
EP type number : 0 413 206 026

Governor  
Governor design. : RQV300...1300MW157  
Governor no. : 0 420 083 343

Cust. part No. : 0270740502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 177.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.55  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 20.00  
Tolerance mm : +- 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.45  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1354  
guide sleeve  
travel mm : 6.71  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.01  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
guide sleeve  
travel mm : 4.76  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 710  
guide sleeve  
travel mm : 3.03  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1683  
guide sleeve  
travel mm : 12.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1780

guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 117  
Rated speed rpm : 1500

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 13.40  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1485  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 4.30

Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm : +- 0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.45  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 14.45  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.40  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : -  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 600  
rack travel mm : 4.20  
Tolerance mm : +- 0.10

Pressure hPa : 250  
rack travel mm : 1.00  
Tolerance mm : +- 0.10

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 132.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 52.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 160.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.09.96  
Test oil : ISO 4113  
Combination No. : 0 401 848 829  
Injection pump  
Pump designation : PE8P110A320LS3865  
EP type number : G 411 818 728

Governor  
Governor design. : RQ250/1150PA1250  
Governor no. : 0 421 801 796

Cust. part No. :

Customer-spec. information  
Customer : DHI  
Motor : V2-8NA

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 250

Rack travel in mm : 8.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1209  
guide sleeve  
travel mm : 7.49  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.59  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1150  
guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 411  
guide sleeve  
travel mm : 5.37  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1340  
guide sleeve  
travel mm : 11.50

Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 700

Rack travel in mm : 15.50  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

CONTROL LEVER

control lever  
position degree : 36.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1203  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : +- 4.0

control lever  
position degree : 14.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. : > 9.90

Testing:

Rated speed rpm : 250  
rack travel mm : 8.10  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : +- 20

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.80  
Tolerance mm : +- 0.05

Rated speed rpm : 650  
rack travel mm : 11.80  
Tolerance mm : +- 0.10

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 170

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 190

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm3/1000 strokes : 127.0  
Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 135.0  
Tolerance  
cm3/1000 strokes : +- 20.0  
Check tolerance  
cm3/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 8.10  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 25.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.09.96

Test oil : ISO 4113

Combination No. : 0 401 848 830

## Injection pump

Pump designation : PE8P110A320LS3865

EP type number : 0 411 818 728

## Governor

Governor design. : RQV250...1000PA1286

Governor no. : 0 421 814 175

Cust. part No. :

## Customer-spec. information

Customer : DHI

Motor : V2-8TC

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00

Tolerance mm : ± 0.05

Del. quantity	
cm3/1000 strokes	: 142.0
Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Speed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 10.0

Rated speed rpm	: 250
Rack travel in mm	: 8.20
Tolerance mm	: ± 0.10
Del. quantity	
cm3/1000 strokes	: 25.0
Tolerance	
cm3/1000 strokes	: ± 3.0
Check tolerance	
cm3/1000S.	: ± 6.0
Speed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 10.0

# (B) SETTING OF INJECTION PUMP WITH GOVERNOR

## GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1058
guide sleeve	
travel mm	: 8.56
Tolerance mm	: ± 0.15
Rated speed rpm	: 250
guide sleeve	
travel mm	: 1.31
Tolerance mm	: ± 0.20
Rated speed rpm	: 666
guide sleeve	
travel mm	: 5.29
Tolerance mm	: ± 0.25
Rated speed rpm	: 380

guide sleeve	
travel mm	: 3.20
Tolerance mm	: ± 0.25

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

## GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1120

Rack travel in mm	: 12.00
Tolerance mm	: ± 2.00

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 142.0
Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Speed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 10.0

## CONTROL LEVER

control lever	
position degree	: 65.0
tolerance degree	: ± 4.0

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 12.00
Rated speed rpm	: 1045
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1155
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
----------------	--------

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 16.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.60

#### Testing:

Rated speed rpm : 250  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  190

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  210

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650

F03

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 8.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.09.96  
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump  
Pump designation : PES4Pi10B72CRS3383  
EP type number : 0 412 014 701

Governor  
Governor design. : RSV300...1100P1A667  
Governor no. : 0 421 833 582

Cust. part No. : 9880955

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI-E A2  
Power KW : 147.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 207.0  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

F04

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.5

#### Spreed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.00  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 5.5

#### Spreed

Tolerance  
cm3/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1420

Del. quantity  
cm3/1000 strokes : 189.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.5

Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 7.5

#### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1030  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : +- 15

Tolerance mm : +- 0.55

rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.80  
Tolerance mm : +- 0.10

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.00  
Tolerance mm : +- 0.10

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.00  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 13.00  
Tolerance mm : +- 0.10

Rated speed rpm : 700  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : 1420  
rack travel mm : 1.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 910  
rack travel mm : 1.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 820  
rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1420  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1420  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Intake CRT corresponds to 0 mm CRT  
with LDA test.

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.09.96

Test oil : ISO 4113

Combination No. : 0 402 646 667

## Injection pump

Pump designation : PE6P120A320RS7412

EP type number : 0 412 626 953

## Governor

Governer design. : RQV275...1000PA1278K

Governer no. : 0 421 815 509

Cust. part No. : 1310221/1

## Customer-spec. information

Customer : DAF

Motor : XF 315 M

Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 140

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

F07

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.10

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 327.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 4.00  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1077  
guide sleeve  
travel mm : 10.24  
Tolerance mm : +- 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : +- 0.20

Rated speed rpm : 704  
guide sleeve  
travel mm : 6.53  
Tolerance mm : +- 0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm : +- 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1158

Rack travel in mm : 12.00  
Tolerance mm : +- 2.70

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 327.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 12.10  
Rated speed rpm : 1050  
Tolerance 1/min : +- 5  
Check  
speed 1/min : +- 10

rack travel mm : 4.00  
Rated speed rpm : 1145  
Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  7.00

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 7.75  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 650  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 8.75  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.09.96  
Test oil : ISO 4113

Combination No. : 0 402 646 670

Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956

Governor  
Governor design. : RQV275...115CPA1296K  
Governor no. : 0 421 815 523

Cust. part No. : 1316183

Customer-spec. information  
Customer : DAF  
Motor : PF 230 M  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 228.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1201  
guide sleeve  
travel mm : 10.07  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 811  
guide sleeve  
travel mm : 6.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 3.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1321

Rack travel in mm : 12.25  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1130  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 228.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1190

Tolerance 1/min :  $\pm$  5  
Check

speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1315

Tolerance 1/min :  $\pm$  15  
Check

speed 1/min :  $\pm$  20

rack travel mm : 0.70

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  7.60

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 330

---

#### TORQUE CONTROL

Rated speed rpm : 1130  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 875  
Pressure hPa : 1500  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375  
Pressure hPa : -  
rack travel mm : 9.05  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 490  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 210  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.06.96  
Test oil : ISO 4113

Combination No. : 0 402 648 904

Injection pump  
Pump designation : PE8P120A320LS7801-1  
EP type number : 0 412 628 818

Governor  
Governor design. : RQV350...1050PA866  
: -9  
Governor no. : 0 421 813 906

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 A  
Power KW : 260.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## CRT ZERO POSITION

Rack travel in mm : 13.90  
Tolerance mm : ± 0.10

---

#### BASIC SETTING

Rated speed rpm : 500

---

Rack travel in mm : 13.90  
Tolerance mm :  $\pm 0.10$

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

---

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

---

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.30  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 6.0$

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1107  
guide sleeve  
travel mm : 8.05  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.55

Tolerance mm :  $\pm 0.25$

Rated speed rpm : 570  
guide sleeve  
travel mm : 3.55  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 900  
guide sleeve  
travel mm : 5.65  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 1204  
guide sleeve  
travel mm : 10.05  
Tolerance mm :  $\pm 0.25$

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 17.25  
Tolerance mm :  $\pm 0.75$

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500  
Aneroid pressure  
hPa : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 1095

Tolerance 1/min :  $\pm 5$   
Check  
speed 1/min :  $\pm 10$

rack travel mm	:	4.00
Rated speed rpm	:	1175
Tolerance 1/min	:	± 15
Check speed 1/min	:	± 20
rack travel mm	:	0.75
Tolerance mm	:	± 0.75
Rated speed rpm	:	1300

#### LOW IDLE

control lever position degree	:	70.0
tolerance degree	:	± 4.0

Setting point w/out bumper spring

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min.	:	> 6.90
-------------	---	--------

#### Testing:

Rated speed rpm	:	350
rack travel mm	:	5.30
Tolerance mm	:	± 0.10

Rated speed rpm	:	450
-----------------	---	-----

#### TORQUE CONTROL

Rated speed rpm	:	500
rack travel mm	:	13.90
Tolerance mm	:	± 0.10

Rated speed rpm	:	1050
rack travel mm	:	12.70
Tolerance mm	:	± 0.10

Rated speed rpm	:	750
rack travel mm	:	14.10
Tolerance mm	:	± 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### 2-stage LDA setting

Rated speed rpm	:	600
Pressure hPa	:	700

#### MEASUREMENT

Pressure hPa	:	400
rack travel mm	:	-1.50
Tolerance mm	:	± 0.05

Pressure hPa	:	475
rack travel mm	:	-0.60
Tolerance mm	:	± 0.10

Pressure hPa	:	925
rack travel mm	:	0.15
Tolerance mm	:	± 0.05

#### Start interlock

Rated speed rpm	:	> 100
Rated speed rpm	:	< 270

Check speed 1/min	:	> 80
Check speed 1/min	:	< 290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	1100
Rated speed rpm	:	1050
Del. quantity cm3/1000 strokes	:	182.5
Tolerance cm3/1000 strokes	:	± 1.5
Check tolerance cm3/1000S.	:	± 4.5
Spread Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

Aneroid pressure hPa	:	1100
Rated speed rpm	:	750
Del. quantity cm3/1000 strokes	:	215.0
Tolerance cm3/1000 strokes	:	± 2.0
Check tolerance cm3/1000S.	:	± 5.0
Spread Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.09.96  
Test oil : ISO 4113

Combination No. : 0 402 736 896

Injection pump  
Pump designation : PES6P120A720/3LS7251  
: -1

EP type number : 0 412 726 926

Governor  
Governor design. : RQV300...1000PA962  
: -14K  
Governor no. : 0 421 815 499

Cust. part No. : 51.11103-7497

Customer-spec. information  
Customer : MAN  
Motor : D2866 LF06  
Power KW : 309.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Overflow quantity  
min. l/h : 200  
Tolerance l/h : +- 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.85  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 13.00  
Tolerance mm : +- 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## Start of delivery blocking

Tolerance : +- 0.10  
Check  
tolerance °NW : +- 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.10  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Rated speed rpm : 300

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1056  
guide sleeve  
travel mm : 8.01  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.65  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 622  
guide sleeve  
travel mm : 4.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 3.82  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1290

Rack travel in mm : 11.70  
Tolerance mm :  $\pm$  2.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

#### CONTROL LEVER

control lever  
position degree : 285.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.70  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 245.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  7.30

Testing:

Rated speed rpm : 300  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 330

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 900  
Pressure hPa : 1200  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
Pressure hPa : -  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 220  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 720  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

---

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.09.96

Test oil : ISO 4113

Combination No. : 0 402 846 053

## Injection pump

Pump designation : PE6P120A320RS8015

EP type number : 0 412 826 016

## Governor

Governor design. : RQV300...1050PA1027K

Governor no. : 0 421 815 311

Cust. part No. : 11031702

: -P03 V.09/95

## Customer-spec. information

Customer : VCE

Motor : TD122KHE

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 10.00

Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1096  
guide sleeve  
travel mm : 9.66  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 771  
guide sleeve  
travel mm : 6.39  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 316  
guide sleeve  
travel mm : 2.30

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 366  
guide sleeve  
travel mm : 2.96  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 3.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1230

Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  2.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 115.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.30

Rated speed rpm : 1085  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1165  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1270

#### LOW IDLE

control lever  
 position degree : 70.0  
 tolerance degree : + 4.0

control lever  
 position degree : 19.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. : > 5.80

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 4.20  
 Tolerance mm : + 0.10

Rated speed rpm : 375

#### TORQUE CONTROL

Rated speed rpm : 800  
 rack travel mm : 10.00  
 Tolerance mm : + 0.05

Rated speed rpm : 1050  
 rack travel mm : 10.30  
 Tolerance mm : + 0.10

Rated speed rpm : 550  
 rack travel mm : 10.90  
 Tolerance mm : + 0.10

Rated speed rpm : 690  
 rack travel mm : 10.30  
 Tolerance mm : + 0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 550  
 Pressure hPa : 1500  
 rack travel mm : 10.90  
 Tolerance mm : + 0.10

Rated speed rpm : 550  
 Pressure hPa : -  
 rack travel mm : 8.50  
 Tolerance mm : + 0.10

#### MEASUREMENT

Rated speed rpm : 550  
 Pressure hPa : 640  
 rack travel mm : 2.00  
 Tolerance mm : + 0.10

Pressure hPa : 240  
 rack travel mm : 0.25  
 Tolerance mm : + 0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 1050  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 219.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 550  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 286.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.09.96  
Test oil : ISO 4113

Combination No. : 0 402 846 057

Injection pump  
Pump designation : PE6P120A320RS8024  
EP type number : 0 412 826 025

Governor  
Governor design. : RQV250...1100PA1072  
: -1K  
Governor no. : 0 421 815 988

Cust. part No. : 477814P05 prel.08.96

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD74EB  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 7.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1176  
guide sleeve  
travel mm : 10.15  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.24  
Tolerance mm : + 0.25

Rated speed rpm : 733  
guide sleeve  
travel mm : 5.39  
Tolerance mm : + 0.25

Rated speed rpm : 307  
guide sleeve  
travel mm : 2.29  
Tolerance mm : + 0.25

Rated speed rpm : 357

guide sleeve  
travel mm : 2.97  
Tolerance mm : + 0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 3.22  
Tolerance mm : + 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1290

Rack travel in mm : 7.50  
Tolerance mm : + 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree : + 4.0

control lever  
position degree : 119.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.05  
Rated speed rpm : 1165  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1255  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1320

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 18.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 13.05

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 1100  
Pressure hPa : 1010  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 120  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 232.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.60

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.09.96  
Test oil : ISO 4113

Combination No. : 0 402 846 061

Injection pump  
Pump designation : PE6P120A320RS8024-1  
EP type number : 0 412 826 029

Governor  
Governor design. : RQV250...1100PA1072  
: -3K  
Governor no. : 0 421 815 979

Cust. part No. : 477950-P05 v. 11.95

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD74 EU  
Power kW : 169.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 7.20  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.40  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 23.0

Tolerance  
cm3/1000 strokes : + 2.5

Check tolerance  
cm3/1000S. : + 5.0

Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1176  
guide sleeve  
travel mm : 10.15  
Tolerance mm : + 0.25

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm : + 0.25

Rated speed rpm : 733  
guide sleeve  
travel mm : 5.39  
Tolerance mm : + 0.25

Rated speed rpm : 307  
guide sleeve  
travel mm : 2.29  
Tolerance mm : + 0.25

Rated speed rpm : 357

guide sleeve  
travel mm : 2.97  
Tolerance mm : + 0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 3.22  
Tolerance mm : + 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1290

Rack travel in mm : 7.50  
Tolerance mm : + 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 175.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 72.0  
tolerance degree : + 4.0

control lever  
position degree : 118.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 10.40  
Rated speed rpm : 1165  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1320

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 19.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 11.40

G05

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 1100  
Pressure hPa : 580  
rack travel mm : 3.50  
Tolerance mm :  $\pm$  0.20  
Pressure hPa : 120  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.40

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.09.96

Test oil : ISO 4113

Combination No. : 0 402 846 079

## Injection pump

Pump designation : PE6P120A320RS8044

EP type number : 0 412 826 036

## Governor

Governer design. : RQV300...1050PA1141

Governer no. : 0 421 814 091

Cust. part No. : 11031994

: -P01 V.08.96

## Customer-spec. information

Customer : VCE

Motor : TD122KFE

Power KW : 297.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Test nozzle holder assembly

: 1 688 901 103

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.50

Tolerance mm : ± 0.05

Check tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30

Check tolerance °NW : ± 0.75

## Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 11.30  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 325

Rack travel in mm : 3.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1132  
guide sleeve  
travel mm : 8.52  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 2.03  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1039  
guide sleeve  
travel mm : 7.00

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 11.10  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 128.0  
tolerance degree :  $\pm$  4.0

---

##### RATED SPEED

rack travel mm : 10.30  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1190

Tolerance 1/min :  $\pm$  15  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1280

---

#### LOW IDLE

control lever  
 position degree : 78.0  
 tolerance degree :  $\pm$  4.0

control lever  
 position degree : 15.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
 CRT mm min. :  $>$  6.00

#### Testing:

Rated speed rpm : 325  
 rack travel mm : 3.80  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 11.30  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
 rack travel mm : 10.45  
 Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1500  
 rack travel mm : 12.25  
 Tolerance mm :  $\pm$  0.25

Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 7.80  
 Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 850  
 rack travel mm : 3.00  
 Tolerance mm :  $\pm$  0.20

Pressure hPa : 300  
 rack travel mm : 0.25  
 Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
 Rated speed rpm :  $>$  230

Check  
 speed 1/min :  $>$  80  
 Check  
 speed 1/min :  $>$  250

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 269.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 188.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.50

Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 3.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 17.09.96  
 Test oil : ISO 4113  
 Combination No. : 0 403 244 056  
 Injection pump  
 Pump designation : PES4MW100/720RS1525  
 EP type number : 0 413 204 022

Governor  
 Governor design. : RQ300/1300MW160  
 Governor no. : 0 420 082 077

Cust. part No. : 0270749502

---

Customer-spec. information  
 Customer : MB-NFZ  
 Motor : CM364LA  
 Power KW : 103.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
 Test oil inlet  
 temp. °C : 40  
 Tolerance °C : ± 2.0  
 Overflow valve : 1 419 992 198  
 Inlet press. bar : 1.5  
 Test nozzle holder  
 assembly : 1 688 901 101  
 Opening pressure  
 bar : 208.5  
 Tolerance bar : ± 1.5  
 Test lines : 1 680 750 089  
 Outside diameter : 8.0

x inside diameter : 3.0  
 x length mm : 600

## REMARKS

---

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
 Tolerance bar : ± 1.0  
 Prestroke mm : 4.55  
 Tolerance mm : ± 0.05  
 Check  
 tolerance mm : ± 0.10  
 Rack travel in mm : 20.00  
 Tolerance mm : ± 1.00  
 Firing order : 1- 3- 4- 2  
 Phasing : 0-90-180-270  
 Tolerance : ± 0.50  
 Check  
 tolerance °NW : ± 0.75

## BASIC SETTING

---

Rated speed rpm : 1300

---

Rack travel in mm : 13.30  
 Tolerance mm : ± 0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 119.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 3.90  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1353  
guide sleeve  
travel mm : 7.45  
Tolerance mm : ± 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.74  
Tolerance mm : ± 0.20

Rated speed rpm : 1300  
guide sleeve  
travel mm : 7.00  
Tolerance mm : ± 0.10

Rated speed rpm : 379  
guide sleeve  
travel mm : 3.45  
Tolerance mm : ± 0.10

Rated speed rpm : 790  
guide sleeve  
travel mm : 7.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1540  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : VL

control lever  
position degree : 109  
Rated speed rpm : 800

Rack travel in mm : 16.50  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1445  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1575

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  5.50

Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 450  
rack travel mm : 2.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 250  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

---

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### REDUCED QUANTITY

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 3.90

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.09.96  
Test oil : ISO 4113

Combination No. : 0 401 876 754

Injection pump  
Pump designation : PE6P110B320RS3152  
EP type number : 0 411 816 799

Governor  
Governor design. : RSV200...1100P1A659  
Governor no. : 0 421 833 577

Cust. part No. : 3826523-P01 v.08.96

Customer-spec. information  
Customer : VOLVO-PENTA  
Motor : TD100G  
Power KW : 203.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.20  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 200

Rack travel in mm : 4.00

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 21.0

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Speed

Tolerance  
cm3/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 173.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

#### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : +- 4.0

control lever  
position degree : 112.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 1130  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1300

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : +- 4.0

control lever  
position degree : 24.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 200  
rack travel mm : 3.50  
Tolerance mm : +- 0.10

#### Testing:

Rated speed rpm : 200  
rack travel mm : 4.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 260  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.70  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.70  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.20  
Tolerance mm : + 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 220  
rack travel mm : 10.50  
Tolerance mm : + 0.20

Pressure hPa : 580  
rack travel mm : 12.45  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 200

Rack travel in mm : 4.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.09.96  
Test oil : ISO 4113

Combination No. : 0 401 876 755

Injection pump  
Pump designation : PE6P120B320RS3187  
EP type number : 0 411 826 818

Governor  
Governor design. : RSV250...1100P1A653  
Governor no. : 0 421 833 571

Cust. part No. : 3826534  
: -P01 v. 08.96

Customer-spec. information  
Customer : VOLVO-PENTA  
Motor : TD121G  
Power KW : 256.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.20  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.5



Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

Rated speed rpm	: 200
Rack travel in mm	: 4.00
Tolerance mm	: ± 0.10
Del. quantity	
cm3/1000 strokes	: 27.0
Tolerance	
cm3/1000 strokes	: ± 2.5
Check tolerance	
cm3/1000S.	: ± 5.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring	
pre-tension	
click setting x	: 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm3/1000 strokes	: 210.5

Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

#### CONTROL LEVER

control lever	
position degree	: 60.0
tolerance degree	: ± 4.0

control lever	
position degree	: 112.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 11.50
Rated speed rpm	: 1130
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

#### LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: ± 4.0

control lever	
position degree	: 24.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 200
rack travel mm	: 3.50
Tolerance mm	: ± 0.10

#### Testing:

Rated speed rpm	: 200
rack travel mm	: 4.00
Tolerance mm	: ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 260  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.50  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.50  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.20  
Tolerance mm : + 0.10

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 530  
rack travel mm : 11.50  
Tolerance mm : + 0.20

Pressure hPa : 760  
rack travel mm : 12.25  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 178.5  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

G20

rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm3/1000 strokes : 265.0  
Tolerance  
cm3/1000 strokes : + 15.0  
Check tolerance  
cm3/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 200

Rack travel in mm : 4.00  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 27.0  
Tolerance  
cm3/1000 strokes : + 2.5  
Check tolerance  
cm3/1000S. : + 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.09.96

Test oil : ISO 4113

Combination No. : 0 402 648 786

Injection pump  
Pump designation : PE8P120A320LS7900  
EP type number : 0 412 628 917

Governor  
Governor design. : RQV350...1050PA1309  
Governor no. : 0 421 814 182

Cust. part No. : 0270742802

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.25  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 239.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 350
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1098
guide sleeve travel mm	: 9.44
Tolerance mm	: ± 0.15
Rated speed rpm	: 350
guide sleeve travel mm	: 1.18
Tolerance mm	: ± 0.20
Rated speed rpm	: 500
guide sleeve travel mm	: 2.69
Tolerance mm	: ± 0.25
Rated speed rpm	: 1320

guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1215

Rack travel in mm	: 12.90
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1000
Del. quantity cm <sup>3</sup> /1000 strokes	: 239.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 102.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.90
Rated speed rpm	: 1085
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1170
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  9.20

Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : -

##### MEASUREMENT

Pressure hPa : 250  
rack travel mm : 0.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 600  
rack travel mm : 2.25  
Tolerance mm :  $\pm$  0.15

---

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### REDUCED QUANTITY

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.96

Test oil : ISO 4113

Combination No. : 0 402 676 830

## Injection pump

Pump designation : PE6P120A320LS7894

EP type number : 0 412 626 954

## Governor

Governor design. : RSV600...1050POA642

Governor no. : 0 421 833 556

Cust. part No. : 0270746002

## Customer-spec. information

Customer : MB-NFZ

Motor : OM 441 LA

Power KW : 285.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 105

Tolerance l/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.75

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

## Firing order

: 6- 3- 5- 2- 4-

: 1

## Phasing

: 0-45-120-165-240

: -285

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

## Barrel no.

: 6

## BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 13.70  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 251.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 600

Rack travel in mm : 4.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 251.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

#### CONTROL LEVER

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 1115

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 600  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min :  $\pm$  30



#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1075  
rack travel mm : 13.70  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 800  
rack travel mm : 14.75  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1000  
rack travel mm : 14.35  
Tolerance mm :  $\pm 0.10$

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 291.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.0$

---

#### LOW IDLE

Rated speed rpm : 600  
Rack travel in mm : 4.10  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.09.96  
Test oil : ISO 4113

Combination No. : 0 402 676 835

Injection pump  
Pump designation : PE6P120A320RS7428  
EP type number : 0 412 626 959

Governor  
Governor design. : RSV300...850P1A594  
: -2  
Governor no. : 0 421 833 479

Cust. part No. : 11031996 P01 v.08.96

## Customer-spec. information

Customer : VCE  
Motor : TD 122 KKE  
Power KW : 237.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 9.40  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 330

Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 6.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

#### CONTROL LEVER

control lever  
position degree : 50.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 8.40  
Rated speed rpm : 870  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 905  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.80  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1070

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 25.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 330  
rack travel mm : 3.40  
Tolerance mm :  $\pm$  0.10

#### Testing:

Rated speed rpm : 330  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 420  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 550  
rack travel mm : 1.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 260  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -

H02

Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 247.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 10.0  
Check tolerance  
cm3/1000S. : 14.0

#### Aneroid pressure

hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 192.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm3/1000 strokes : 145.0  
Tolerance  
cm3/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm3/1000S. :  $\pm$  19.0

#### LOW IDLE

Rated speed rpm : 330  
Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 45.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.96

Test oil : ISO 4113

Combination No. : 0 402 748 812

## Injection pump

Pump designation : PES8P120A720LS7425

EP type number : 0 412 728 814

## Governor

Governor design. : RQV350...1200PA1310K

Governor no. : 0 421 815 541

Cust. part No. : CCEP 5164 66-136

## Customer-spec. information

Customer : RENAULT V.I.

Motor : MACK E9-750

Power KW : 552.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Test nozzle holder assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

H04

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.85

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.00

Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 8- 4  
: - 5- 6- 3

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 4.20

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

## betw. rack trav.

mm : 21.00

## and maximum rack

travel : 19.50

Difference ° CS : 3.90

## CRT ZERO POSITION

Rack travel in mm : 13.30  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1200

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : -6.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1255

guide sleeve  
travel mm : 9.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.90

H05

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 833  
guide sleeve  
travel mm : 5.90  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.27  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1570  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1408

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

rack travel mm : -9.30

Rated speed rpm : 1370  
Tolerance 1/min : + 15  
  
rack travel mm : -12.75  
Tolerance mm : + 0.55  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 325  
rack travel mm : -6.30  
Tolerance mm : + 0.10

Rated speed rpm : 225  
  
CRT mm max. : < -4.20  
  
Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
  
Rated speed rpm : 900  
rack travel mm : -0.65  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : -1.60  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -3.30  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1200

H06

Pressure hPa : 640  
rack travel mm : -2.60  
Tolerance mm : + 0.20

Pressure hPa : 950  
rack travel mm : -0.75  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 120  
Rated speed rpm : < 230

Check  
speed 1/min : > 100  
Check  
speed 1/min : < 250

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 293.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 460.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0



---

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : -6.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.09.96  
Test oil : ISO 4113

Combination No. : 0 402 846 076

Injection pump  
Pump designation : PE6P120A32ORS8043  
EP type number : 0 412 862 035

Governor  
Governor design. : RQV300...1100PA1248  
Governor no. : 0 421 814 165

Cust. part No. : 11031330  
: -P01 v.08.96

## Customer-spec. information

Customer : VCE  
Motor : TD 103 KBE  
Power KW : 216.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

H08

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 330

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1140  
guide sleeve  
travel mm : 7.71  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 330  
guide sleeve  
travel mm : 2.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1080  
guide sleeve  
travel mm : 6.80  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1249

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

##### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 114.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.00  
Rated speed rpm : 1130  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 230

CRT mm min. :  $>$  7.00

#### Testing:

Rated speed rpm : 330  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550  
rack travel mm : 2.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 230  
rack travel mm : 0.25

H10

Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 330

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.09.96  
Test oil : ISO 4113

Combination No. : 0 402 846 077

Injection pump  
Pump designation : PE6P120A320RS8043  
EP type number : 0 412 826 035

Governor  
Governor design. : RQV300...1050PA1247  
Governor no. : 0 421 814 163

Cust. part No. : 11031331-P01v.08.96

## Customer-spec. information

Customer : VCE  
Motor : TD 103 KCE  
Power kW : 189.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 320

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102  
guide sleeve

travel mm : 7.80  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 320

guide sleeve  
travel mm : 1.34  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 802

guide sleeve  
travel mm : 5.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.11

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1400

guide sleeve  
travel mm : 11.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1259

Rack travel in mm : 9.80

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever

position degree : 45.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 111.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.60

Rated speed rpm : 1090

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1170

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1250

---

## LOW IDLE

control lever  
position degree : 84.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 18.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 220  
CRT mm min. :  $>$  8.00

### Testing:

Rated speed rpm : 320  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 380

---

## TORQUE CONTROL

Rated speed rpm : 500  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 720  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 2.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 230  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

## FUEL DELIVERY CHARACTERISTICS

---

### Aneroid pressure

hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## LOW IDLE

Rated speed rpm : 320

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.09.96  
Test oil : ISO 4113

Combination No. : 0 402 846 078

Injection pump  
Pump designation : PE6P120A32ORS8044  
EP type number : 0 412 826 036

Governor  
Governor design. : RQV300...1050PA1225  
Governor no. : 0 421 814 151

Cust. part No. : 11031993  
: -P01 v.08/96

## Customer-spec. information

Customer : VCE  
Motor : TD122KAE  
Power KW : 245.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 138  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 3.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1130  
guide sleeve

travel mm : 8.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325

guide sleeve  
travel mm : 2.03  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1039

guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520

guide sleeve  
travel mm : 4.67

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310

guide sleeve  
travel mm : 11.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1201

Rack travel in mm : 8.40

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever

position degree : 62.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 126.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 8.30

Rated speed rpm : 1120

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1165

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1265

---

## LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. :  $>$  7.73

### Testing:

Rated speed rpm : 325  
rack travel mm : 3.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

## TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.05

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 520  
rack travel mm : 1.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 290  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

## FUEL DELIVERY CHARACTERISTICS

---

### Aneroid pressure

hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 3.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 11.09.96

Test oil : ISO 4113

Combination No. : 0 403 246 047

## Injection pump

Pump designation : PES6MW100/720PS1522

EP type number : 0 413 206 023

## Governor

Governer design. : RQV300...1300MW148

: -4

Governer no. : 0 420 083 325

Cust. part No. : 0250744802

## Customer-spec. information

Customer : MB-NFZ

Motor : OM366LA

Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

## Test nozzle holder assembly

: 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 4.55

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 118.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm3/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 12.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread  
Tolerance

cm3/1000 strokes : 2.0  
Check tolerance

cm3/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1355  
guide sleeve  
travel mm : 9.32  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1078  
guide sleeve  
travel mm : 7.06  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 514  
guide sleeve  
travel mm : 2.14  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 564  
guide sleeve  
travel mm : 2.60  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 740  
guide sleeve  
travel mm : 3.93  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1720  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 123  
Rated speed rpm : 1500

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 118.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spread  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1485  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 5.00

Testing:

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : +- 0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : -  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 4.20  
Tolerance mm : +- 0.10

Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm : +- 0.10

---

#### Start interlock

Rated speed rpm : > 100

H2O

Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 113.0  
Tolerance  
cm3/1000 strokes : +- 1.5  
Check tolerance  
cm3/1000S. : +- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 48.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 150.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.09.96  
Test oil : ISO 4113  
Combination No. : 0 403 246 050  
Injection pump  
Pump designation : PES6MW100/720RS1527  
EP type number : 0 413 206 026  
Governor  
Governor design. : RQV300...1300MW132  
: -16  
Governor no. : 0 420 083 335  
Cust. part No. : 0260749302

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

H22

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.00  
Tolerance mm : ± 1.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 13.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 4.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1353

guide sleeve

travel mm : 6.70

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300

guide sleeve

travel mm : 1.01

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1090

guide sleeve

travel mm : 4.70

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 690

guide sleeve

travel mm : 2.97

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1683

guide sleeve

travel mm : 12.00

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1780

guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : VL

control lever  
position degree : 125

Rated speed rpm : 1480

Rack travel in mm : 10.00

Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 118.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 117.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1345

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1480

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  4.50

Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 490  
rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 500  
rack travel mm : 3.15  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 300  
rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.10

---

Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  220

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.09.96  
Test oil : ISO 4113

Combination No. : 0 402 676 832

Injection pump  
Pump designation : PE6P120A320LS7898  
EP type number : 0 412 626 957

Governor  
Governor design. : RSV350...1000POA648  
Governor no. : 0 421 833 565

Cust. part No. : 0270748202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 A  
Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.75

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 101.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1030  
rack travel mm : 10.70

Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1031  
rack travel mm : 10.70

Rated speed rpm : 1106  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1032  
rack travel mm : 10.70

Rated speed rpm : 1107  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1033

rack travel mm : 10.70  
 Rated speed rpm : 1108  
 Tolerance 1/min :  $\pm 4$   
 rack travel mm : 4.00  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm 0.55$   
 Rated speed rpm : 1300

Rated speed rpm : 1034  
 rack travel mm : 10.70

Rated speed rpm : 1109  
 Tolerance 1/min :  $\pm 4$   
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm :  $\pm 0.55$   
 Rated speed rpm : 1300

Rated speed rpm : 1035  
 rack travel mm : 10.70

Rated speed rpm : 1110  
 Tolerance 1/min :  $\pm 4$   
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm :  $\pm 0.55$   
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 71.0  
 tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $> 19.50$

Testing:

Rated speed rpm : 350  
 rack travel mm : 5.00  
 Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
 Rated speed rpm : 405  
 Tolerance 1/min :  $\pm 30$

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 980  
 rack travel mm : 11.75  
 Tolerance mm :  $\pm 0.05$

Rated speed rpm : 600  
 rack travel mm : 11.75  
 Tolerance mm :  $\pm 0.05$

Rated speed rpm : 400  
 rack travel mm : 10.95  
 Tolerance mm :  $\pm 0.15$

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
 Pressure hPa : 1000  
 rack travel mm : 1.70  
 Tolerance mm :  $\pm 0.05$

Rated speed rpm : 400  
 Pressure hPa : -  
 Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 360  
 rack travel mm : 0.40  
 Tolerance mm :  $\pm 0.10$

Pressure hPa : 480  
 rack travel mm : 1.30  
 Tolerance mm :  $\pm 0.10$

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 170.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 6.0$   
 Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 400  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.09.96  
Test oil : ISO 4113

Combination No. : 0 402 678 831

Injection pump  
Pump designation : PE8P120A320LS7901  
EP type number : 0 412 628 918

Governor  
Governor design. : RSV350...105CP0A651  
Governor no. : 0 412 833 568

Cust. part No. : 0270745602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442LA  
Power KW : 297.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 20.50  
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5



Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 89.0

##### RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 1075

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1145

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 67.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 350

rack travel mm : 5.70

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 390

Tolerance 1/min : + 30

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

##### TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 13.80

Tolerance mm : + 0.05

Rated speed rpm : 600

rack travel mm : 14.20

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 860  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 250  
rack travel mm : 0.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 800  
rack travel mm : 3.20  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.09.96

Test oil : ISO 4113

Combination No. : 0 402 678 834

## Injection pump

Pump designation : PE8P120A320LS7903

EP type number : 0 412 628 920

## Governor

Governer design. : RSV600...950POA663

Governer no. : 0 421 833 580

Cust. part No. : 027 074 4602

## Customer-spec. information

Customer : MB-NFZ

Motor : OM442A

Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.50

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 930

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 600  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 930  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 92.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 970  
rack travel mm : 11.90

Rated speed rpm : 1035  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 971  
rack travel mm : 11.90

Rated speed rpm : 1036  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 972  
rack travel mm : 11.90

Rated speed rpm : 1037  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 973  
rack travel mm : 11.90

Rated speed rpm : 1038

Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55

Rated speed rpm : 974  
rack travel mm : 11.90

Rated speed rpm : 1039  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55

Rated speed rpm : 975  
rack travel mm : 11.90

Rated speed rpm : 1040  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 600  
Tolerance mm : +- 0.10

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 930  
rack travel mm : 12.90  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm : +- 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 2.90  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
Tolerance mm : +- 0.05

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 470  
rack travel mm : 0.70  
Tolerance mm : +- 0.10

Pressure hPa : 630  
rack travel mm : 2.15  
Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 208.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 142.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

STARTING FUEL DELIVERY.

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 600  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.08.96

Test oil : ISO 4113

Combination No. : 0 402 646 742

## Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

## Governor

Governor design. : RQ300/1100PA1272

Governor no. : 0 421 801 804

Cust. part No. : 0270743002

## Customer-spec. information

Customer : MB-NFZ

Motor : OM441 LA

Power kW : 228.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 120

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 019

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

Check tolerance °NW : ± 0.75

Barrel no. : 6

## CRT ZERO POSITION

Rack travel in mm : 12.60

Tolerance mm : ± 0.05

---

#### BASIC SETTING

Rated speed rpm : 600

---

Rack travel in mm : 12.60  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1153  
guide sleeve  
travel mm : 6.37  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.94

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 431  
guide sleeve  
travel mm : 4.71  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 570  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1350  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 650

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED



rack travel mm : 12.70  
Rated speed rpm : 1140  
Tolerance 1/min : +- 8  
Check  
speed 1/min : +- 13

rack travel mm : 4.00  
Rated speed rpm : 1250  
Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

rack travel mm : 0.75  
Tolerance mm : +- 0.75  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 9.00

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.60  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : +- 20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.60  
Tolerance mm : +- 0.05

Rated speed rpm : 1100  
rack travel mm : 13.70  
Tolerance mm : +- 0.10

Rated speed rpm : 700  
rack travel mm : 13.70  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### 2-stage LDA setting

Rated speed rpm : 400  
Pressure hPa : 600

#### MEASUREMENT

Pressure hPa : 350  
rack travel mm : -0.80  
Tolerance mm : +- 0.15

Pressure hPa : 200  
rack travel mm : -2.00  
Tolerance mm : +- 0.20

Pressure hPa : 975  
rack travel mm : 0.50  
Tolerance mm : +- 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 219.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 4.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 214.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : 350  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 746 609C  
Injection pump  
Pump designation : PES6P130A720RS7411  
EP type number : 0 412 736 808

Governor  
Governor design. : RQ275/950PA1274  
Governor no. : 0 421 801 807

Cust. part No. : 221 575

Customer-spec. information  
Customer : RABA  
Motor : siehe Bemerkung

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0

Tolerance		
cm <sup>3</sup> /1000 strokes	: ±	1.0
<hr/>		
Check tolerance		
cm <sup>3</sup> /1000S.	: ±	4.0
<hr/>		
Spreed		
<hr/>		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	5.0
<hr/>		
Check tolerance		
cm <sup>3</sup> /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	275
Rack travel in mm	:	4.20
Tolerance mm	: ±	0.10
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	24.0
Tolerance		
cm <sup>3</sup> /1000 strokes	: ±	3.0
Check tolerance		
cm <sup>3</sup> /1000S.	: ±	6.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	12.0

(3) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1007
guide sleeve		
travel mm	:	6.56
Tolerance mm	: ±	0.15
Rated speed rpm	:	275
guide sleeve		
travel mm	:	2.06
Tolerance mm	: ±	0.20
Rated speed rpm	:	950
guide sleeve		
travel mm	:	6.00
Tolerance mm	: ±	0.10
Rated speed rpm	:	361
guide sleeve		
travel mm	:	4.45
Tolerance mm	: ±	0.10
Rated speed rpm	:	450

guide sleeve		
travel mm	:	6.00
Tolerance mm	: ±	0.10
Rated speed rpm	:	1200
guide sleeve		
travel mm	:	11.50
Tolerance mm	: ±	0.50

GUIDE SLEEVE POSITION

control lever		
position degree	:	109
Rated speed rpm	:	1059
Rack travel in mm	:	10.90
Tolerance mm	: ±	1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure		
hPa	:	1500
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	263.0
Tolerance		
cm <sup>3</sup> /1000 strokes	: ±	1.0
Check tolerance		
cm <sup>3</sup> /1000S.	: ±	4.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	9.0

CONTROL LEVER

control lever		
position degree	:	34.0
tolerance degree	: ±	4.0
control lever		
position degree	:	96.0
tolerance degree	: ±	4.0

RATED SPEED

rack travel mm	:	12.10
Rated speed rpm	:	1095
Tolerance 1/min	: ±	5
rack travel mm	:	4.00
Rated speed rpm	:	1190
Tolerance 1/min	: ±	15
rack travel mm	:	0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  6.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 335  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 380  
rack travel mm : 9.85  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 600  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
rack travel mm : 20.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.08.96

Test oil : ISO 4113

Combination No. : 0 402 076 797

## Injection pump

Pump designation : PES6P120A720RS3378

EP type number : 0 412 026 799

## Governor

Governor design. : RSV450...1000P5A637

Governor no. : 0 421 833 548

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FIAT

Motor : 8365.26.541

Power kW : 129.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

## Overflow quantity

min. l/h : 240

Tolerance l/h : ± 20.0

## Test nozzle holder assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.00

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 125.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm3/1000S. : +- 4.0

---

Spreed

---

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 450

Rack travel in mm : 4.20

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Spreed  
Tolerance

cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 5.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 125.0  
Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 8.00  
Rated speed rpm : 1070  
Tolerance 1/min : +- 5  
Check  
speed 1/min : +- 10

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

---

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 3.70  
Tolerance mm : +- 0.10

#### Testing:

Rated speed rpm : 450  
rack travel mm : 4.20  
Tolerance mm : +- 0.10



rack travel mm : 2.00  
Rated speed rpm : 560  
Tolerance 1/min :  $\pm$  50

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 9.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 330  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 735 810  
  
Injection pump  
Pump designation : PES5P120A720/3LS7310  
EP type number : 0 412 725 817

Governor  
Governor design. : RQ325/1000PA1106-1  
Governor no. : 0 421 801 700

Cust. part No. : 3-7324

Customer-spec. information  
Customer : MAN  
Motor : D2865LUH06  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 20.0  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089

J20

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 12.80  
Tolerance mm : ± 0.50  
  
Firing order : 1- 3- 5- 4- 2  
  
Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 5

## BASIC SETTING

Rated speed rpm : 550  
  
Rack travel in mm : 10.80  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.90  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 43.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Speed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1071  
guide sleeve  
travel mm : 7.35  
Tolerance mm : +- 0.10

Rated speed rpm : 325  
guide sleeve  
travel mm : 2.50  
Tolerance mm : +- 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.01  
Tolerance mm : +- 0.10

Rated speed rpm : 777  
guide sleeve  
travel mm : 7.01  
Tolerance mm : +- 0.10

Rated speed rpm : 408

guide sleeve  
travel mm : 4.50  
Tolerance mm : +- 0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 7.00  
Tolerance mm : +- 0.10

Rated speed rpm : 1220  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 700

Rack travel in mm : 15.50  
Tolerance mm : +- 0.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 750  
Del. quantity  
cm3/1000 strokes : 235.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 11.20  
Rated speed rpm : 1053  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  8.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

#### 2-stage LDA setting

Rated speed rpm : 500  
Pressure hPa : 750  
rack travel mm : 10.80

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 300  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 1000  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1250  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 4.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 735 811  
Injection pump  
Pump designation : PES5P120A720/3LS7348  
EP type number : 0 412 725 818

Governor  
Governor design. : RQ325/1000PA1106-2  
Governor no. : 0 421 801 750

Cust. part No. : 3-7392

Customer-spec. information  
Customer : MAN  
Motor : D2865LUH06  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.80  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 5

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.90  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1059  
guide sleeve  
travel mm : 7.34  
Tolerance mm : +- 0.10

Rated speed rpm : 325  
guide sleeve  
travel mm : 2.50  
Tolerance mm : +- 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.00  
Tolerance mm : +- 0.10

Rated speed rpm : 401  
guide sleeve  
travel mm : 4.29  
Tolerance mm : +- 0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 7.00

Tolerance mm : +- 0.10

Rated speed rpm : 1210  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 700

Rack travel in mm : 15.50  
Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 2000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 11.20  
Rated speed rpm : 1053  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1250

---

## LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  8.00

### Testing:

Rated speed rpm : 325  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  20

---

## TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

---

## 2-stage LDA setting

Rated speed rpm : 500  
Pressure hPa : 750  
rack travel mm : 10.80

### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 300  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 1000  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1250  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.15

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

Aneroid pressure  
hPa : 750  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

---

Aneroid pressure  
hPa : -



Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.08.96  
Test oil : ISO 4113

Combination No. : 0 402 744 805

Injection pump  
Pump designation : PES4P120A320RS7312  
: -1  
EP type number : 0 412 724 803

Governor  
Governor design. : RQ400/1200PA1319  
Governor no. : 0 421 801 813

Cust. part No. : 51.11103-7553

## Customer-spec. information

Customer : MAN  
Motor : D 0824 LOH 05  
Power KW : 114.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 087

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.80  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1256  
guide sleeve  
travel mm : 7.33  
Tolerance mm : +- 0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 2.94  
Tolerance mm : +- 0.20

Rated speed rpm : 1200  
guide sleeve  
travel mm : 7.00  
Tolerance mm : +- 0.10

Rated speed rpm : 443  
guide sleeve  
travel mm : 4.95  
Tolerance mm : +- 0.10

Rated speed rpm : 530

guide sleeve  
travel mm : 7.00  
Tolerance mm : +- 0.10

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 1269

Rack travel in mm : 12.05  
Tolerance mm : +- 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 12.05  
Rated speed rpm : 1250  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1335  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1400

---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. :  $>$  -1.00

### Testing:

Rated speed rpm : 400  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 433  
Tolerance 1/min :  $\pm$  20

---

## TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.15

### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 200  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.25

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  12.0

---

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification: sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113

Combination No. : 0 403 476 146

Injection pump  
Pump designation : PES6MW100/320RS1245  
EP type number : 0 413 406 247

Governor  
Governor design. : RSV300...1100MWOA400  
Governor no. : 0 420 085 293

Cust. part No. : 11032700

Customer-spec. information  
Customer : VCE  
Motor : TD 63KDE  
Power KW : 90.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.40  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### CONTROL LEVER

control lever  
position degree : 81.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1145  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1265  
Tolerance 1/min : +- 15

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 1420

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 106.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 4.90  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 300  
rack travel mm : 5.40  
Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 580  
Tolerance 1/min : +- 30

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.35  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 13.90  
Tolerance mm : +- 0.10

Rated speed rpm : 820  
rack travel mm : 12.80  
Tolerance mm : +- 0.20

Rated speed rpm : 770  
rack travel mm : 13.10  
Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.90  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.05  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 290  
rack travel mm : 13.00  
Tolerance mm : +- 0.10

Pressure hPa : 120  
rack travel mm : 11.45  
Tolerance mm : +- 0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 130.0

Tolerance  
cm3/1000 strokes : +- 1.5  
Check tolerance  
cm3/1000S. : +- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 77.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00  
Del. quantity  
cm3/1000 strokes : 100.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 17.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5



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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.06.97  
Test oil : ISO-4113

Combination No. : 0 400 846 509

Injection pump  
Pump designation : PES6A95D402LS2542  
EP type number : 0 410 896 936

Governor  
Governor design. : RQ250/1100AB1137-8L  
Governor no. : 0 420 200 090

Cust. part No. :

Customer-spec. information  
Customer : MAN  
Motor : D2566 MUH

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Outside diameter : 6.00

x inside diameter : 2.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 250  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 600  
  
Rack travel in mm : 16.00  
Tolerance mm :  $\pm 0.40$

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

rack travel mm : 16.0  
Rated speed rpm : 600  
  
rack travel mm : 8.60  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$   
  
rack travel mm : 4.00  
Rated speed rpm : 1230.0

Tolerance 1/min :  $\pm 15.0$   
rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1300

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 7.0

Rated speed rpm : 100

CRT mm min. : 8.50

Testing:

Rated speed rpm : 250  
rack travel mm : 7.00  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 400.0  
Tolerance 1/min :  $\pm 20.0$

TORQUE CONTROL

Dimension a mm : 0.80  
Rated speed rpm : 700  
rack travel mm : 11.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 600  
rack travel mm : 11.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 885  
rack travel mm : 10.70  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 980  
rack travel mm : 9.85  
Tolerance mm :  $\pm 0.15$

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.50  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.70  
Tolerance mm :  $\pm 0.30$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 8.00$

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.02.90  
Test oil : ISO-4113  
  
Combination No. : 0 400 846 569  
  
Injection pump  
Pump designation : PES6A95D32ORS2770  
EP type number : 0 410 896 905  
  
Governor  
Governor design. : RQV350...1350AB1236  
                  : -3R  
Governor no. : 0 420 213 112  
  
Cust. part No. : 1811834C93

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT 360  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 038  
  
Inlet press. bar : 2.80  
  
Test nozzle holde  
assembly : 1 688 901 110  
  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 008  
  
Outside diameter : 6.00  
  
x inside diameter : 2.00

K11

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 28.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Firing order : 1- 5- 3- 6- 2  
              : - 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1350  
  
Rack travel in mm : 11.45  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.00  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.00  
  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 350.0

Rack travel in mm : 5.80  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.50$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350  
guide sleeve  
travel mm : 7.40  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1460  
guide sleeve  
travel mm : 8.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.40  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.50  
Tolerance mm :  $\pm 0.20$

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1350  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 50.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1430.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 4.00  
Rated speed rpm : 1535.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 12.0  
tolerance degree :  $\pm 4.0$

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 5.8

Rated speed rpm : 100

CRT mm min. : 9.00

Testing:

Rated speed rpm : 350  
rack travel mm : 5.80  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1350  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 8.75  
Tolerance mm :  $\pm 0.15$

Pressure hPa : 240  
rack travel mm : 9.35  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 480  
rack travel mm : 10.90  
Tolerance mm :  $\pm 0.20$

---

#### Start interlock

Rated speed rpm : 290

Check  
speed 1/min : 300

---

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 15.00$

---

#### LOW IDLE

Rated speed rpm : 350.0  
Rack travel in mm : 5.80  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.50$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.89  
Test oil : ISO-4113

Combination No. : 0 401 840 109

Injection pump  
Pump designation : PE12P120A520/4LS857  
EP type number : 0 411 820 035

Governor  
Governor design. : RQV250...1050PA889  
Governor no. : 0 421 813 696

Cust. part No. : 2-7906

Customer-spec. information  
Customer : MAN  
Motor : D2542TE60  
Power KW : 361.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.00

x inside diameter : 3.00  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
                  : - 3- 4- 11- 10  
                  : - 2- 6

Phasing : 0-45-60-105-120-165  
          : -180-225-240-285  
          : -300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 8.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00



Spreed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 250.0

Rack travel in mm : 4.20  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm3/1000 strokes : 20.00  
Tolerance  
cm3/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm3/1000S. :  $\pm 6.00$

Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.00  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 700  
guide sleeve  
travel mm : 4.80  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.50  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1400  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm 0.50$

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1

Rated speed rpm : 1125

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Del. quantity  
cm3/1000 strokes : 146.00  
Tolerance  
cm3/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm3/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 115.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1125

rack travel mm : 7.20  
Rated speed rpm : 1095.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1155.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 4.2

Rated speed rpm : 100

CRT mm min. : 5.70

Testing:

Rated speed rpm : 250  
rack travel mm : 4.20  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 8.25  
Tolerance mm :  $\pm 0.05$

---

Start interlock

Rated speed rpm : 190

Check  
speed 1/min : 210

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

---

LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 4.20  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.03.90  
Test oil : ISO-4113  
  
Combination No. : 0 401 846 530  
  
Injection pump  
Pump designation : PE6P110A32ORS407-1  
EP type number : 0 411 816 147

Governor  
Governor design. : RQ275/1000PA818  
Governor no. : 0 421 801 360

Cust. part No. :

Customer-spec. information  
Customer : DAF  
Motor : LT 160  
Power kW : 160.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
                  : - 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.50

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.0

---

Rated speed rpm : 275.0

Rack travel in mm : 7.40  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm3/1000 strokes : 16.50

Tolerance  
cm3/1000 strokes :  $\pm 2.50$

Check tolerance  
cm3/1000S. :  $\pm 5.00$

Spread  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 600

Rack travel in mm : 16.00  
Tolerance mm :  $\pm 0.40$

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Del. quantity

cm3/1000 strokes : 135.00  
Tolerance

cm3/1000 strokes :  $\pm 1.00$   
Check tolerance

cm3/1000S. :  $\pm 3.50$   
Spread

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.0

#### RATED SPEED

rack travel mm : 16.0  
Rated speed rpm : 600

rack travel mm : 10.00  
Rated speed rpm : 1037.5

Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1105.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm 4.0$

#### Setting point w/out bumper spring

Rated speed rpm : 275  
rack travel mm : 7.4

Rated speed rpm : 100

CRT mm min. : 8.60

#### Testing:

Rated speed rpm : 275  
rack travel mm : 7.40  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 370.0  
Tolerance 1/min :  $\pm 20.0$

---

#### TORQUE CONTROL

Dimension a mm : 0.60  
Rated speed rpm : 600  
rack travel mm : 12.05  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 550  
rack travel mm : 12.40  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 745  
rack travel mm : 12.00  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 880  
rack travel mm : 11.35  
Tolerance mm :  $\pm 0.15$

---

## FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 980  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.00

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.00

---

## LOW IDLE

Rated speed rpm : 275.0  
Rack travel in mm : 7.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.50  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.50  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.00  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.12.89  
Test oil : ISO-4113

Combination No. : 0 401 846 548

Injection pump  
Pump designation : PE6P120A320RS257  
EP type number : 0 411 826 075

Governor  
Governor design. : RQ250/1100PA877  
Governor no. : 0 421 801 409

Cust. part No. : 181335

Customer-spec. information  
Customer : ENASA  
Motor : 96T1AZ  
Power KW : 228.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250.0

Rack travel in mm : 5.60  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 550

Rack travel in mm : 16.00  
Tolerance mm :  $\pm 0.60$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 16.0  
Rated speed rpm : 550

rack travel mm : 9.60  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1205.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm 4.0$

##### Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 5.6

Rated speed rpm : 100

CRT mm min. : 7.10

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.60  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 360.0  
Tolerance 1/min :  $\pm 20.0$

##### TORQUE CONTROL

Dimension a mm : 0.20  
Rated speed rpm : 600  
rack travel mm : 10.95  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1080  
rack travel mm : 10.70  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 720  
rack travel mm : 10.80  
Tolerance mm :  $\pm 0.10$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.95  
Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 8.90  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 340  
rack travel mm : 9.35  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 470  
rack travel mm : 10.20  
Tolerance mm :  $\pm 0.10$

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1080  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm 0.75$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

#### LOW IDLE

Rated speed rpm : 250.0  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 06.04.90  
 Test oil : ISO-4113  
 Combination No. : 0 401 846 907  
 Injection pump  
 Pump designation : PE6P120A32CLS3815  
 : -13  
 EP type number : 0 411 826 782  
 Governor  
 Governor design. : RQV350..1050PA925  
 Governor no. : 0 421 813 764

Cust. part No. :

Customer-spec. information  
 Customer : DB-NKW  
 Motor : OM 441 A  
 Power KW : 191.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
 temp. °C : 40.0  
 Tolerance °C : ± 2.0  
 Overflow valve : 1 417 413 025  
 Inlet press. bar : 1.50  
 Overflow quantity  
 min. l/h : 110.0  
 Tolerance l/h : ± 10.0  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening pressure  
 bar : 208.5  
 Tolerance bar : ± 1.5  
 Test lines : 1 680 750 067

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Outside diameter : 6.00  
 x inside diameter : 3.00  
 x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
 Tolerance bar : ± 1.0  
 Prestroke mm : 3.65  
 Tolerance mm : ± 0.05  
 Check  
 tolerance mm : ± 0.10  
 Rack travel in mm : 10.50  
 Tolerance mm : ± 1.50  
 Firing order : 6- 3- 5- 2- 4  
 : - 1  
 Phasing : 0-60-120-180-240  
 : -300  
 Tolerance : ± 0.50  
 Check  
 tolerance °NW : ± 0.75  
 Start of delivery mark  
 Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1050  
 Rack travel in mm : 11.45  
 Tolerance mm : ± 0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 183.50  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.50

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.50$

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350.0

Rack travel in mm : 4.90  
Tolerance mm :  $\pm 0.30$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 4.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 7.00$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.50  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 800  
guide sleeve  
travel mm : 4.90  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1100  
guide sleeve  
travel mm : 7.90  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 1175  
guide sleeve  
travel mm : 9.50  
Tolerance mm :  $\pm 0.30$

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1080

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.50  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.50$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1080

rack travel mm : 10.70  
Rated speed rpm : 1095.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1165.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1250

---

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.9

Rated speed rpm : 250

CRT mm min. : 8.00

Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm :  $\pm 0.30$

#### TORQUE CONTROL

Dimension a mm : 1.30  
Rated speed rpm : 1050  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 950  
rack travel mm : 12.00  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 850  
rack travel mm : 12.50  
Tolerance mm :  $\pm 0.10$

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 0.90  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 600  
rack travel mm : 2.60  
Tolerance mm :  $\pm 0.20$

##### Start interlock

Rated speed rpm : 270

Check  
speed 1/min : 290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.

Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

Aneroid pressure  
hPa : )  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

LOW IDLE

Rated speed rpm : 350.0

Rack travel in mm : 4.90

Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.00

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  7.00

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.90  
Test oil : ISO-4113  
  
Combination No. : 0 401 848 807  
  
Injection pump  
Pump designation : PE8P130A520/4RS3126  
EP type number : 0 411 838 707  
  
Governor  
Governor design. : RQV400...750PA934-1  
Governor no. : 0 421 813 817

Cust. part No. :

Customer-spec. information  
Customer : BAUDOUIN  
Motor : 8P15

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 074

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 4- 5- 6- 3  
: - 7- 8

Phasing : 0-45-90-135-180-225  
: -270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.50

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.50

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.00

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 400.0

Rack travel in mm : 5.00  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 7.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.00  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 475  
guide sleeve  
travel mm : 2.00  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 600  
guide sleeve  
travel mm : 2.00  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.50  
Tolerance mm :  $\pm 0.50$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.50  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 8.30  
Rated speed rpm : 752.5  
Tolerance 1/min :  $\pm 2.5$

rack travel mm : 4.00  
Rated speed rpm : 775.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 900

##### LOW IDLE

control lever  
position degree : 86.0  
tolerance degree :  $\pm 4.0$

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.0

Rated speed rpm : 100

CRT mm min. : 6.50

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.00  
Tolerance mm :  $\pm 0.10$

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 9.35  
Tolerance mm :  $\pm 0.05$

---

Start interlock

Rated speed rpm : 340

Check  
speed 1/min : 360

---

LOW IDLE

Rated speed rpm : 400.0

Rack travel in mm : 5.00

Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 7.00$

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.03.90  
Test oil : ISO-4113

Combination No. : 0 401 848 809

Injection pump  
Pump designation : PE8P110A320LS3842-1  
EP type number : 0 411 818 716

Governor  
Governor design. : RQV350..1050PA378-7  
Governor no. : 0 421 813 714

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Overflow quantity  
min. l/h : 110.0  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3- 5  
: - 4- 1

Phasing : 0-45-90-135-180-225  
: -270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00



Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.50

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 350.0

Rack travel in mm : 8.15  
Tolerance mm :  $\pm$  0.15

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.50

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
guide sleeve  
travel mm : 5.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
guide sleeve  
travel mm : 8.20  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm$  0.40

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1110

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.50  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 16.5  
Rated speed rpm : 1110

rack travel mm : 11.70  
Rated speed rpm : 1095.0  
Tolerance 1/min :  $\pm$  5.0

rack travel mm : 4.00  
Rated speed rpm : 1155.0  
Tolerance 1/min :  $\pm$  15.0

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 8.1

Rated speed rpm : 250

CRT mm min. : 9.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 8.15  
Tolerance mm :  $\pm 0.15$

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm 0.05$

#### Start interlock

Rated speed rpm : 270

Check  
speed 1/min : 290

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.

Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

#### LOW IDLE

Rated speed rpm : 350.0  
  
Rack travel in mm : 8.15  
Tolerance mm :  $\pm 0.15$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.03.90  
Test oil : ISO-4113  
  
Combination No. : 0 401 848 811  
  
Injection pump  
Pump designation : PE8P110A320LS3842-2  
EP type number : 0 411 818 722

Governor  
Governor design. : RQV350..1050PA378  
                  : -11  
Governor no. : 0 421 813 714

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Overflow quantity  
min. l/h : 110.0  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

L05

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3- 5  
                  : - 4- 1

Phasing : 0-45-90-135-180-225  
          : -270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.50$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 350.0

Rack travel in mm : 8.15  
Tolerance mm :  $\pm 0.15$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.60  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 800  
guide sleeve  
travel mm : 5.10  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1100  
guide sleeve  
travel mm : 8.20  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm 0.40$

GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1110

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.50$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm 4.0$

RATED SPEED

rack travel mm : 16.5  
Rated speed rpm : 1110

rack travel mm : 11.70  
Rated speed rpm : 1095.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1155.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 8.1

Rated speed rpm : 250

CRT mm min. : 9.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 8.15  
Tolerance mm :  $\pm 0.15$

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm 0.05$

#### Start interlock

Rated speed rpm : 270

Check  
speed 1/min : 290

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

#### LOW IDLE

Rated speed rpm : 350.0

Rack travel in mm : 8.15  
Tolerance mm :  $\pm 0.15$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.01.90  
Test oil : ISO-4113

Combination No. : 0 401 849 744A

Injection pump  
Pump designation : PE10P120A520/4LS3849  
EP type number : 0 411 829 708

Governor  
Governor design. : RQ750PA663-7  
Governor no. : 0 421 801 331

Cust. part No. : 2-7976

Customer-spec. information  
Customer : MAN  
Motor : D2840 LE  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

LC8

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10- 9- 4- 1- 8  
                  : - 7- 6- 3- 5  
                  : - 2

Phasing : 0-45-72-117-144-189  
          : -216-261-288-333  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 300.0

Rack travel in mm : 4.70  
Tolerance mm :  $\pm 0.20$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 6.00$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

### (3) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.00$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

#### RATED SPEED

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 950

#### LOW IDLE

Testing:

L09

rack travel mm : 4.70  
Tolerance mm :  $\pm 0.20$

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.55  
Tolerance mm :  $\pm 0.05$

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

#### LOW IDLE

Rated speed rpm : 300.0

Rack travel in mm : 4.70  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 6.00$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.01.90  
Test oil : ISO-4113

Combination No. : 0 401 849 746

Injection pump  
Pump designation : PE10P120A520/4LS3855  
EP type number : 0 411 829 709

Governor  
Governor design. : RQV300...1000PA838  
Governor no. : 0 421 813 585

Cust. part No. : 2-7779

Customer-spec. information  
Customer : MAN  
Motor : D2840LF/460  
Power KW : 338.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

L10

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10- 9- 4- 1- 8  
: - 7- 6- 3- 5  
: - 2

Phasing : 0-45-72-117-144-189  
: -216-261-288-333  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00



## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300.0

Rack travel in mm : 5.30  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.20  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 850  
guide sleeve  
travel mm : 6.75  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.80  
Tolerance mm :  $\pm 0.10$

---

### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1025

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

---

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm 4.0$

### RATED SPEED

rack travel mm : 16.5  
Rated speed rpm : 1025

rack travel mm : 9.50  
Rated speed rpm : 1045.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1120.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1250

---

### LOW IDLE

control lever  
position degree : 84.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.3

Rated speed rpm : 100

CRT mm min. : 6.80

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.30  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.55  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 10.55  
Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Rated speed rpm : 500  
  
rack travel mm : 9.30  
Tolerance mm :  $\pm 0.10$   
  
Pressure hPa : 380  
rack travel mm : 9.65  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 500  
rack travel mm : 10.20  
Tolerance mm :  $\pm 0.10$

---

#### Start interlock

Rated speed rpm : 230

Check  
speed 1/min : 250

---

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

#### LOW IDLE

Rated speed rpm : 300.0  
  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.11.89  
Test oil : ISO-4113

Combination No. : 0 401 876 333

Injection pump  
Pump designation : PE6P120A320RS257  
EP type number : 0 411 826 075

Governor  
Governor design. : RSV250...1100POA533  
Governor no. : 0 421 833 274

Cust. part No. : 181340

Customer-spec. information  
Customer : ENASA  
Motor : 96 T1A0  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250.0

Rack travel in mm : 5.80  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : -3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm 0.20$

governor spring  
pre-tension  
click setting x : 3.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 0.5  
Rated speed rpm : 800

rack travel mm : 9.10  
Rated speed rpm : 1145.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1185.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 4.00  
Rated speed rpm : 1185.0

rack travel mm : 0.85  
Tolerance mm :  $\pm 0.55$   
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm 4.0$

##### Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 5.3

Rated speed rpm : 100

CRT mm min. : 19.50

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.80  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 360.0  
Tolerance 1/min :  $\pm 30.0$

##### TORQUE CONTROL

Dimension a mm : 2.90  
Rated speed rpm : 1050  
rack travel mm : 10.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 450  
rack travel mm : 10.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 300  
rack travel mm : 11.60  
Tolerance mm :  $\pm 0.30$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm 0.75$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

#### LOW IDLE

Rated speed rpm : 250.0  
Rack travel in mm : 5.80  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.01.90  
Test oil : ISO-4113  
Combination No. : 0 402 036 069  
Injection pump  
Pump designation : PES6P120A720/3LS470  
 : -3  
EP type number : 0 412 026 051  
Governor  
Governor design. : RQ300/1100PA579-2  
Governor no. : 0 421 801 402  
Cust. part No. : 2-7878

Customer-spec. information  
Customer : MAN  
Motor : D2866LUL/290  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.50  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 067  
Outside diameter : 6.00  
x inside diameter : 3.00

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 6- 2- 4- 1- 5  
 : - 3  
Phasing : 0-60-120-180-240  
 : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 750  
Rack travel in mm : 10.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.00  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.00

## Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300.0

Rack travel in mm : 5.10  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever  
position degree : 45  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm 0.80$

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

## RATED SPEED

rack travel mm : 20.0  
Rated speed rpm : 600

rack travel mm : 9.60  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1195.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1350

## LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm 4.0$

### Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.1

Rated speed rpm : 100

CRT mm min. : 6.60

### Testing:

Rated speed rpm : 300  
rack travel mm : 5.10  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 365.0  
Tolerance 1/min :  $\pm 20.0$

## TORQUE CONTROL

Dimension a mm : 0.20  
Rated speed rpm : 750  
rack travel mm : 10.65  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 750  
rack travel mm : 11.30  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 925  
rack travel mm : 10.85

Tolerance mm :  $\pm 0.15$

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 10.65  
Tolerance mm :  $\pm 0.05$

MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 8.90  
Tolerance mm :  $\pm 0.10$   
  
Pressure hPa : 210  
rack travel mm : 9.15  
Tolerance mm :  $\pm 0.05$   
  
Pressure hPa : 375  
rack travel mm : 10.05  
Tolerance mm :  $\pm 0.15$

---

Start interlock

Rated speed rpm : 190  
  
Check  
speed 1/min : 210

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

LOW IDLE

Rated speed rpm : 300.0  
  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.12.82  
Test oil : ISO-4113  
Combination No. : 0 402 036 079  
Injection pump  
Pump designation : PES6P120A72D/3LS470  
 : -2  
EP type number : 0 412 026 050  
Governor  
Governor design. : RGV300...11Q0PA876  
Governor no. : 0 421 813 661

Cust. part No. : 2-7761

Customer-spec. information  
Customer : MAN  
Motor : D2866LF/290  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.00

x inside diameter : 3.00

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.35  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5  
 : - 3

Phasing : 0-60-120-180-240  
 : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 10.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300.0

Rack travel in mm : 5.10  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.85  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 850  
guide sleeve  
travel mm : 6.10  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1100  
guide sleeve  
travel mm : 8.20  
Tolerance mm :  $\pm 0.10$

### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1190

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

## CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm 4.0$

## RATED SPEED

rack travel mm : 16.5  
Rated speed rpm : 1190

rack travel mm : 8.70  
Rated speed rpm : 1145.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1220.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1350

## LOW IDLE

control lever  
position degree : 86.0  
tolerance degree :  $\pm 4.0$

## Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.1

Rated speed rpm : 100

CRT mm min. : 6.60

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.10  
Tolerance mm :  $\pm 0.10$

#### TORQUE CONTROL

Dimension a mm : 0.80  
Rated speed rpm : 750  
rack travel mm : 10.35  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1100  
rack travel mm : 9.85  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 925  
rack travel mm : 10.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 975  
rack travel mm : 9.90  
Tolerance mm :  $\pm 0.10$

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 10.35  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 9.10  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 85  
rack travel mm : 9.45  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 160  
rack travel mm : 10.00  
Tolerance mm :  $\pm 0.20$

#### Start interlock

Rated speed rpm : 220

Check  
speed 1/min : 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Aneroid pressure  
hPa : 60  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 6.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 9.00$

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

LOW IDLE

Rated speed rpm : 300.0  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

## Note remarks

Edition : 12.01.90  
Test oil : ISO-4113

Injection pump  
Pump designation : PES6P120A720/3LS470  
: -2  
EP type number : 0 412 026 050

Cust. part No. : 2-7756

Customer : MAN  
Motor : D2866LF  
Power KW : 243.0

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Inlet press. bar : 1.50

Opening pressure  
bar : 208.5  
Tolerance bar :  $\pm 1.5$

Outside diameter : 6.00

x inside diameter : 1.00

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

Test pressure bar : 31.0  
Tolerance bar :  $\pm 1.0$

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

```
Phasing      : 0-60-120-180-240
              : -300
Tolerance    : + 0.50
Check
tolerance °NW : + 0.75
```

Barrel no. : 6

Rated speed rpm : 750

Rack travel in mm : 11.15  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm3/1000 strokes : 203.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$

Check tolerance  
cm3/1000S. : + 4.00

## Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300.0

Rack travel in mm : 4.80  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever  
position degree : 108  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm 0.80$

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED  
rack travel mm : 20.0  
Rated speed rpm : 600

rack travel mm : 9.70  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1200.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1300

### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm 4.0$

### Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 4.8

Rated speed rpm : 100

CRT mm min. : 6.30

### Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 360.0  
Tolerance 1/min :  $\pm 20.0$

### TORQUE CONTROL

Dimension a mm : 0.50  
Rated speed rpm : 750  
rack travel mm : 11.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 750  
rack travel mm : 12.05  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 875  
rack travel mm : 11.90

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 950  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10  
Pressure hPa : 85  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 280  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

---

##### Start interlock

Rated speed rpm : 220

Check  
speed 1/min : 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.00

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 650

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.00

---

Aneroid pressure  
hPa : 80  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  6.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.00

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.00

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.00

---

#### LOW IDLE

Rated speed rpm : 300.0  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.00  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.01.90  
Test oil : ISO-4113

Combination No. : 0 402 046 208

Injection pump  
Pump designation : PES6P120A720LS388  
EP type number : 0 412 026 030

Governor  
Governor design. : RQ250/1100PA509  
Governor no. : 0 421 801 117

Cust. part No. : 2-7083

Customer-spec. information  
Customer : MAN  
Motor : D2566MKF  
Power KW : 206.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5  
: - 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250.0

Rack travel in mm : 6.30  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : -2  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm 0.80$

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED  
rack travel mm : 20.0  
Rated speed rpm : 600

rack travel mm : 9.20  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1195.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1400

#### LOW IDLE

control lever  
position degree : 13.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 6.3

Rated speed rpm : 100

CRT mm min. : 7.80

#### Testing:

Rated speed rpm : 250  
rack travel mm : 6.30  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 355.0  
Tolerance 1/min :  $\pm 20.0$

#### TORQUE CONTROL

Dimension a mm : 0.50  
Rated speed rpm : 750  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1100  
rack travel mm : 10.25  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 875  
rack travel mm : 11.20

Tolerance mm :  $\pm 0.10$   
Rated speed rpm : 985  
rack travel mm : 10.55  
Tolerance mm :  $\pm 0.15$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 9.25  
Tolerance mm :  $\pm 0.05$   
Pressure hPa : 310  
rack travel mm : 10.35  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 430  
rack travel mm : 11.00  
Tolerance mm :  $\pm 0.10$

---

##### Start interlock

Rated speed rpm : 170

Check  
speed 1/min : 190

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 700  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Aneroid pressure  
hPa : 700  
Rated speed rpm : 650

Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Aneroid pressure  
hPa : 10  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

#### LOW IDLE

Rated speed rpm : 250.0  
Rack travel in mm : 6.30  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.01.90  
Test oil : ISO-4113  
  
Combination No. : 0 402 046 209  
  
Injection pump  
Pump designation : PES6P120A72OLS388  
EP type number : 0 412 026 030

Governor  
Governor design. : RQ250/1100PA509  
Governor no. : 0 421 801 117

Cust. part No. : 2-7066

Customer-spec. information  
Customer : MAN  
Motor : D2566MK  
Power KW : 206.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5  
: - 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250.0

Rack travel in mm : 6.30  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : -2  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm 0.80$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED  
rack travel mm : 20.0  
Rated speed rpm : 600

rack travel mm : 9.20  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1195.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 13.0  
tolerance degree :  $\pm 4.0$

##### Setting point without bumper spring

Rated speed rpm : 250  
rack travel mm : 6.3

Rated speed rpm : 100

CRT mm min. : 7.80

##### Testing:

Rated speed rpm : 250  
rack travel mm : 6.30  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 355.0  
Tolerance 1/min :  $\pm 20.0$

##### TORQUE CONTROL

Dimension a mm : 0.50  
Rated speed rpm : 750  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1100  
rack travel mm : 10.25  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 875  
rack travel mm : 11.20

Tolerance mm :  $\pm 0.10$   
Rated speed rpm : 985  
rack travel mm : 10.55  
Tolerance mm :  $\pm 0.15$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 9.25  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 310  
rack travel mm : 10.35  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 430  
rack travel mm : 11.00  
Tolerance mm :  $\pm 0.10$

---

##### Start interlock

Rated speed rpm : 170

Check  
speed 1/min : 190

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 700  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Aneroid pressure  
hPa : 700  
Rated speed rpm : 650

Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Aneroid pressure  
hPa : 10  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

---

#### LOW IDLE

Rated speed rpm : 250.0  
Rack travel in mm : 6.30  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.01.90  
Test oil : ISO-4113

Combination No. : 0 402 046 287

Injection pump  
Pump designation : PES6P100A720LS471  
EP type number : 0 412 006 034

Governor  
Governor design. : RQ250/1100PA685  
Governor no. : 0 421 801 227

Cust. part No. : 2-7454

Customer-spec. information  
Customer : MAN  
Motor : D2566UH/200  
Power KW : 147.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5  
: - 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 250.0

Rack travel in mm : 5.00  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 600

Rack travel in mm : 16.00  
Tolerance mm :  $\pm 0.40$

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.00$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

RATED SPEED  
rack travel mm : 16.0

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Rated speed rpm : 600  
rack travel mm : 11.20  
Rated speed rpm : 1152.5  
Tolerance 1/min :  $\pm 7.5$

rack travel mm : 4.00  
Rated speed rpm : 1230.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 9.0  
tolerance degree :  $\pm 4.0$

##### Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 5.0

Rated speed rpm : 100

CRT mm min. : 6.50

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.00  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 360.0  
Tolerance 1/min :  $\pm 20.0$

---

##### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.35  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1100  
rack travel mm : 12.30  
Tolerance mm :  $\pm 0.10$

---

##### FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.50  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.50$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

#### LOW IDLE

Rated speed rpm : 250.0  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.12.89

Test oil : ISO-4113

Combination No. : 0 402 046 322

Injection pump

Pump designation : PES6P110A720LS375

EP type number : 0 412 016 053

Governor

Governer design. : RQ250/1100PA658-17

Governer no. : 0 421 801 309

Cust. part No. : 2-7588

## Customer-spec. information

Customer : MAN

Motor : D2566 MTUH/265

Power KW : 195.0

## TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly

: 0 681 343 009

Opening pressure  
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00

x length mm : 600

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## REMARKS

### (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.05

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5

: - 3

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

### BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 144.00

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.50

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0  


---

  
 Rated speed rpm : 250.0  
  
 Rack travel in mm : 7.00  
 Tolerance mm :  $\pm 0.10$   
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 13.00  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 5.50$   
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
 position degree : 45  
 Rated speed rpm : 600  
  
 Rack travel in mm : 20.00  
 Tolerance mm :  $\pm 0.80$

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 144.00  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 3.50$   
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

RATED SPEED  
 rack travel mm : 20.0  
 Rated speed rpm : 600  
  
 rack travel mm : 11.70  
 Rated speed rpm : 1152.5  
 Tolerance 1/min :  $\pm 7.5$   
  
 rack travel mm : 4.00  
 Rated speed rpm : 1200.0  
 Tolerance 1/min :  $\pm 15.0$   
  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm 0.50$   
 Rated speed rpm : 1350

#### LOW IDLE

control lever  
 position degree : 13.0  
 tolerance degree :  $\pm 4.0$

#### Setting point w/out bumper spring

Rated speed rpm : 250  
 rack travel mm : 7.0

Rated speed rpm : 100

CRT mm min. : 8.50

#### Testing:

Rated speed rpm : 250  
 rack travel mm : 7.00  
 Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
 Rated speed rpm : 380.0  
 Tolerance 1/min :  $\pm 20.0$

#### TORQUE CONTROL

Dimension a mm : 0.40  
 Rated speed rpm : 1100  
 rack travel mm : 11.75  
 Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1100  
 rack travel mm : 11.75  
 Tolerance mm :  $\pm 0.05$

Rated speed rpm : 810  
 rack travel mm : 12.60

Tolerance mm :  $\pm 0.10$   
Rated speed rpm : 950  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.10$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 12.65  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 10.85  
Tolerance mm :  $\pm 0.05$   
  
Pressure hPa : 200  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 310  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.20$

---

##### Start interlock

Rated speed rpm : 170

Check  
speed 1/min : 190

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

---

Aneroid pressure  
hPa : 200  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.50$

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 14.00$

---

##### LOW IDLE

Rated speed rpm : 250.0  
  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.50$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.02.90  
Test oil : ISO-4113

Combination No. : 0 402 046 338

Injection pump  
Pump designation : PES6P120A32ORS522  
EP type number : 0 412 026 057

Governor  
Governor design. : RQV275...1000PA912  
Governor no. : 0 421 813 744

Cust. part No. :

Customer-spec. information  
Customer : RVI  
Motor : MIDR062045L  
Power KW : 176.5

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 18.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275.0

Rack travel in mm : 6.30  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 0.80  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.80  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.50  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.20  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1400  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm 0.50$

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1130

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1130

rack travel mm : -1.00  
Rated speed rpm : 1080.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : -8.00  
Rated speed rpm : 1215.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : -11.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 275  
rack travel mm : 6.3



Rated speed rpm : 100

#### Testing:

Rated speed rpm : 275  
rack travel mm : 6.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 200

CRT mm max. : -4.60

#### TORQUE CONTROL

Rated speed rpm : 1000

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

#### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : -1.75  
Tolerance mm :  $\pm 0.15$

Pressure hPa : 240  
rack travel mm : -0.35  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 140  
rack travel mm : -1.25  
Tolerance mm :  $\pm 0.15$

#### Start interlock

Rated speed rpm : 195

Check  
speed 1/min : 215

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 15.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 15.00$

#### LOW IDLE

Rated speed rpm : 275.0

Rack travel in mm : 6.30  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.03.90  
Test oil : ISO-4113  
Combination No. : 0 402 046 784A  
Injection pump  
Pump designation : PE36P120A320RS3139  
EP type number : 0 412 026 718

Governor  
Governor design. : RQV275...1000PA728  
: -2  
Governor no. : 0 421 813 599

Cust. part No. :

Customer-spec. information  
Customer : RVI  
Motor : MIDR 062045 E  
Power KW : 236.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00

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x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery differende  
betw. rack trav.  
mm : 10.50  
Tolerance mm : ± 0.50

## BASIC SETTING

Rated speed rpm : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275.0  
 Rack travel in mm : 5.70  
 Tolerance mm :  $\pm 0.10$   
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 26.00  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 6.00$   
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
 guide sleeve  
 travel mm : 1.00  
 Tolerance mm :  $\pm 0.10$

Rated speed rpm : 450  
 guide sleeve  
 travel mm : 3.50  
 Tolerance mm :  $\pm 0.20$

Rated speed rpm : 800  
 guide sleeve  
 travel mm : 5.80  
 Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1000  
 guide sleeve  
 travel mm : 7.10  
 Tolerance mm :  $\pm 0.10$

#### GUIDE SLEEVE POSITION

control lever  
 position degree : -1  
 Rated speed rpm : 1170

Rack travel in mm : 16.50

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Tolerance mm :  $\pm 1.30$

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 160.00  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 4.00$   
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
 position degree : 119.0  
 tolerance degree :  $\pm 4.0$

#### RATED SPEED

rack travel mm : 16.5  
 Rated speed rpm : 1170

rack travel mm : -1.00  
 Rated speed rpm : 1070.0  
 Tolerance 1/min :  $\pm 5.0$

rack travel mm : -7.60  
 Rated speed rpm : 1195.0  
 Tolerance 1/min :  $\pm 15.0$

rack travel mm : -10.80  
 Tolerance mm :  $\pm 0.20$   
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 68.0  
 tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 275  
 rack travel mm : 5.7

Testing:

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 200  
CRT mm max. : -4.00

---

TORQUE CONTROL  
Rated speed rpm : 1000

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Rated speed rpm : 500  
  
rack travel mm : -2.80  
Tolerance mm :  $\pm 0.10$   
  
Pressure hPa : 320  
rack travel mm : -0.65  
Tolerance mm :  $\pm 0.05$   
  
Pressure hPa : 160  
rack travel mm : -2.00  
Tolerance mm :  $\pm 0.10$

---

Start interlock

Rated speed rpm : 195

Check  
speed 1/min : 215

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 15.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 19.00$

---

LOW IDLE

Rated speed rpm : 275.0  
  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.02.90  
Test oil : ISO-4113

Combination No. : 0 402 046 791A

Injection pump  
Pump designation : PES6P120A320RS3139  
EP type number : 0 412 026 718

Governor  
Governor design. : RQV275...950PA728-4  
Governor no. : 0 421 313 673

Cust. part No. :

Customer-spec. information  
Customer : RVI  
Motor : MIDR 063540 H  
Power KW : 264.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery difference

betw. rack trav.  
mm : 10.50  
Tolerance mm : ± 0.50

## BASIC SETTING

Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275.0

Rack travel in mm : 7.70  
Tolerance mm :  $\pm 0.20$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.50  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 800  
guide sleeve  
travel mm : 5.80  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.80  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1500  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm 0.50$

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1125  
  
Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1125

rack travel mm : -1.00  
Rated speed rpm : 1020.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : -9.30  
Rated speed rpm : 1175.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : -12.65  
Tolerance mm :  $\pm 0.35$   
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 275  
rack travel mm : 7.7

Testing:

Rated speed rpm : 275  
rack travel mm : 7.70  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 200  
CRT mm max. : -6.10

---

TORQUE CONTROL

Rated speed rpm : 600

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Rated speed rpm : 500  
  
rack travel mm : -3.70  
Tolerance mm :  $\pm 0.20$   
  
Pressure hPa : 660  
rack travel mm : -0.65  
Tolerance mm :  $\pm 0.05$   
  
Pressure hPa : 200  
rack travel mm : -3.00  
Tolerance mm :  $\pm 0.10$

---

Start interlock

Rated speed rpm : 195

Check  
speed 1/min : 215

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 71.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 67.00$

---

LOW IDLE

Rated speed rpm : 275.0  
  
Rack travel in mm : 7.70  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.02.90  
Test oil : ISO-4113

Combination No. : 0 402 046 791a

Injection pump  
Pump designation : PES6P120A320RS3139  
EP type number : 0 412 026 718

Governor  
Governor design. : RQV275...950PA728-4  
Governor no. : 0 421 813 678

Cust. part No. :

Customer-spec. information  
Customer : RVI  
Motor : MIDR 063540 H  
Power KW : 264.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 600

M23

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery differende  
betw. rack trav.  
mm : 10.50  
Tolerance mm : ± 0.50

## BASIC SETTING

Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275.0

Rack travel in mm : 7.70  
Tolerance mm :  $\pm 0.20$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.50  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 800  
guide sleeve  
travel mm : 5.80  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.80  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1500  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm 0.50$

GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1125

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1125

rack travel mm : -1.00  
Rated speed rpm : 1020.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : -9.30  
Rated speed rpm : 1175.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : -12.65  
Tolerance mm :  $\pm 0.35$   
Rated speed rpm : 1250

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 275  
rack travel mm : 7.7

Testing:

Rated speed rpm : 275  
rack travel mm : 7.70  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 200  
CRT mm max. : -6.10

---

TORQUE CONTROL  
Rated speed rpm : 600

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Rated speed rpm : 500  
rack travel mm : -3.70  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 660  
rack travel mm : -0.65  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 200  
rack travel mm : -3.00  
Tolerance mm :  $\pm 0.10$

---

Start interlock

Rated speed rpm : 195

Check  
speed 1/min : 215

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 71.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 67.00$

---

LOW IDLE

Rated speed rpm : 275.0  
Rack travel in mm : 7.70  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.01.90  
Test oil : ISO-4113

Combination No. : 0 402 046 814

Injection pump  
Pump designation : PES6P120A720LS3229  
EP type number : 0 412 026 733

Governor  
Governor design. : RQ750PA945  
Governor no. : 0 421 801 512

Cust. part No. : 2-7970

Customer-spec. information  
Customer : MAN  
Motor : D2866LE  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.00

x inside diameter : 3.00  
x length mm : 1000

M26

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5  
: - 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300.0

Rack travel in mm : 4.40  
Tolerance mm :  $\pm 0.30$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### LOW IDLE

##### Testing:

rack travel mm : 4.40  
Tolerance mm :  $\pm 0.30$

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.55  
Tolerance mm :  $\pm 0.05$

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.55  
Tolerance mm :  $\pm 0.05$

#### LOW IDLE

Rated speed rpm : 300.0

Rack travel in mm : 4.40  
Tolerance mm :  $\pm 0.30$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.02.90  
Test oil : ISO-4113

Combination No. : 0 402 640 818

Injection pump  
Pump designation : PE12P120A520LS7829  
EP type number : 0 412 620 821

Governor  
Governor design. : RQV250...115QPA943  
Governor no. : 0 421 813 850

Cust. part No. : 3-7023

Customer-spec. information  
Customer : MAN  
Motor : D2842LZE  
Power kW : 809.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

M28

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6

Phasing : 0-45-60-105-120-165  
: -180-225-240-285  
: -300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Spreed \_\_\_\_\_  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.20  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1225

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300

N01

Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.00  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1225  
rack travel mm : 12.80  
Rated speed rpm : 1195.0  
Tolerance 1/min :  $\pm$  5.0

rack travel mm : 4.00  
Rated speed rpm : 1300.0  
Tolerance 1/min :  $\pm$  15.0

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 7.4

Rated speed rpm : 100

CRT mm min. : 8.90

Testing:

Rated speed rpm : 250

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.85  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.85  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 9.20  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 100  
rack travel mm : 9.55  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 470  
rack travel mm : 12.20  
Tolerance mm :  $\pm 0.20$

---

##### Start interlock

Rated speed rpm : 170

Check  
speed 1/min : 190

---

#### FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.04.90  
Test oil : ISO-4113

Combination No. : 0 402 640 818

Injection pump  
Pump designation : PE12P120A520LS7829  
EP type number : 0 412 620 821

Governor  
Governor design. : RGV300...1150PA943  
Governor no. : 0 421 813 850

Cust. part No. : 3-7023

Customer-spec. information  
Customer : MAN  
Motor : D2842LZE  
Power KW : 809.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 1000

N03

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6

Phasing : 0-45-60-105-120-165  
: -180-225-240-285  
: -300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.00  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.20  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.70  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm 0.50$

GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1225

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300

N04

Del. quantity  
cm3/1000 strokes : 305.00  
Tolerance  
cm3/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm3/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1225  
rack travel mm : 12.80  
Rated speed rpm : 1195.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1300.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1400

LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm 2.0$

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 7.4

Rated speed rpm : 100

CRT mm min. : 8.90

Testing:

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.85  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.85  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 9.20  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 100  
rack travel mm : 9.55  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 470  
rack travel mm : 12.20  
Tolerance mm :  $\pm 0.20$

---

##### Start interlock

Rated speed rpm : 170

Check  
speed 1/min : 190

---

#### FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.11.89  
Test oil : ISO-4113  
Combination No. : 0 402 646 859  
Injection pump  
Pump designation : PE6P130A720RS7153  
EP type number : 0 412 636 809  
Governor  
Governor design. : RQV300...950PA883  
Governor no. : 0 421 813 690

Cust. part No. :

Customer-spec. information  
Customer : IVECO-UNIC  
Motor : 8210.42.300

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.00

x inside diameter : 3.00  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.50

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.50

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

Rated speed rpm : 300.0

Rack travel in mm : 3.80  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 7.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.10  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 950  
guide sleeve  
travel mm : 7.20  
Tolerance mm :  $\pm 0.10$

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1  
Rated speed rpm : 1000

Rack travel in mm : 16.50

N07

Tolerance mm :  $\pm 1.30$

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.50

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 16.5  
Rated speed rpm : 1000

rack travel mm : 11.80  
Rated speed rpm : 995.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1100.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1200

---

##### LOW IDLE

control lever  
position degree : 63.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 3.8

Rated speed rpm : 100

CRT mm min. : 6.30

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.80  
Tolerance mm :  $\pm 0.10$

---

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.85  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.85  
Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 8.40  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 500  
rack travel mm : 11.85  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 380  
rack travel mm : 9.50  
Tolerance mm :  $\pm 0.20$

---

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.50  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

---

#### STARTING FUEL DELIVERY

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Rated speed rpm : 100

---

#### LOW IDLE

Rated speed rpm : 300.0

Rack travel in mm : 3.80  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 7.00$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.05.90  
Test oil : ISO-4113  
Combination No. : 0 402 646 906  
Injection pump  
Pump designation : PE6P120A320LS7808  
EP type number : 0 412 626 816  
Governor  
Governor design. : RQ300/1050PA762-4  
Governor no. : 0 421 801 390

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 228.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Overflow quantity  
min. l/h : 110.0  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 057

Outside diameter : 6.00

x inside diameter : 3.00

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4  
: - 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.90  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.00

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300.0

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.00

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 600  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 880  
guide sleeve  
travel mm : 6.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1110  
guide sleeve  
travel mm : 6.65  
Tolerance mm :  $\pm$  0.15

##### GUIDE SLEEVE POSITION

control lever  
position degree : 108  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.00  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.00  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 101.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 20.0  
Rated speed rpm : 600

rack travel mm : 13.80  
Rated speed rpm : 1102.5  
Tolerance 1/min :  $\pm$  7.5

rack travel mm : 4.00  
Rated speed rpm : 1165.0  
Tolerance 1/min :  $\pm$  15.0

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

##### LOW IDLE



control lever  
position degree : 72.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.7

Rated speed rpm : 200

CRT mm min. : 7.70

Testing:

Rated speed rpm : 300  
rack travel mm : 5.70  
Tolerance mm :  $\pm 0.30$

rack travel mm : 2.00  
Rated speed rpm : 400.0  
Tolerance 1/min :  $\pm 20.0$

#### TORQUE CONTROL

Dimension a mm : 0.35  
Rated speed rpm : 600  
rack travel mm : 14.90  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1050  
rack travel mm : 14.90  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 800  
rack travel mm : 15.50  
Tolerance mm :  $\pm 0.10$

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600

##### MEASUREMENT

Rated speed rpm : 600

##### Start interlock

Rated speed rpm : 220

Check  
speed 1/min : 240

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#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : 1600

Rated speed rpm : 1050

Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.50

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.50$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.50$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00

Check tolerance  
cm<sup>3</sup>/1000S. : 12.

##### Aneroid pressure

hPa : 1600

Rated speed rpm : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00

Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

##### Aneroid pressure

hPa : )

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00

Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.00  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.00  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.00

---

#### LOW IDLE

Rated speed rpm : 300.0  
Rack travel in mm : 5.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.00  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.00  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.00  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.02.90  
Test oil : ISO-4113  
Combination No. : 0 402 648 803  
Injection pump  
Pump designation : PE8P120A920/4LS7003  
EP type number : 0 412 628 801

Governor  
Governor design. : RQ750PA528  
Governor no. : 0 421 801 126

Cust. part No. :

Customer-spec. information  
Customer : SAAB-SCANIA  
Motor : s. Bemerkungen\*\*

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter : 3.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4- 5  
: - 6- 8

Phasing : 0-45-90-135-180-225  
: -270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree :  $\pm 4.0$

RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 752.5  
Tolerance 1/min :  $\pm 2.5$

rack travel mm : 4.00  
Rated speed rpm : 790.5  
Tolerance 1/min :  $\pm 6.5$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 850

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.85  
Tolerance mm :  $\pm 0.05$

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 25.00$

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.04.90  
Test oil : ISO-4113  
  
Combination No. : 0 402 648 860  
  
Injection pump  
Pump designation : PE8P120A920/4LS7125  
EP type number : 0 412 628 833  
  
Governor  
Governor design. : RQV200..1050PA736-6  
Governor no. : 0 421 813 740

Cust. part No. :

Customer-spec. information  
Customer : SCANIA  
Motor : DS14,DSC14

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.50  
  
Test nozzle holde  
assembly : 1 688 901 019  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.00  
x inside diameter : 3.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4- 5  
: - 6- 8

Phasing : 0-45-90-135-180-225  
: -270-315  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.55  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 215.00

Tolerance  
cm3/1000 strokes : ± 1.00

Check tolerance  
cm3/1000s. : ± 4.00

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 225.0

Rack travel in mm : 5.10  
Tolerance mm :  $\pm 0.20$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 225  
guide sleeve  
travel mm : 1.40  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.60  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 650  
guide sleeve  
travel mm : 4.30  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 1095  
guide sleeve  
travel mm : 8.30  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1215  
guide sleeve  
travel mm : 9.90  
Tolerance mm :  $\pm 0.20$

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1

Rated speed rpm : 1100

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 16.5  
Rated speed rpm : 1100

rack travel mm : 12.50  
Rated speed rpm : 1095.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1215.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 225

rack travel mm : 5.0

Rated speed rpm : 100

CRT mm min. : 6.50

#### Testing:

Rated speed rpm : 225  
rack travel mm : 5.10  
Tolerance mm :  $\pm 0.20$

rack travel mm : 2.00  
Rated speed rpm : 410.0  
Tolerance 1/min :  $\pm 30.0$

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.55  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 13.55  
Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 365  
rack travel mm : 12.85  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 215  
rack travel mm : 12.00  
Tolerance mm :  $\pm 0.10$

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 4.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 25.00$

---

#### LOW IDLE

Rated speed rpm : 225.0  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.05.90  
Test oil : ISO-4113

Combination No. : 0 402 746 810

Injection pump  
Pump designation : PES6P120A72CRS7135  
EP type number : 0 412 726 807

Governor  
Governor design. : RQV325...900PA848K  
Governor no. : 0 421 815 168

Cust. part No. : 313GC5173P10

Customer-spec. information  
Customer : MACK TRUCKS  
Motor : E6 350 4VH  
Power KW : 261.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity  
min. l/h : 165.0  
Tolerance l/h : ± 5.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.00

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00



Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.10  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.30  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.20  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 850  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.60  
Tolerance mm :  $\pm 0.10$

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 12.90  
Rated speed rpm : 955.0  
Tolerance 1/min :  $\pm 5.0$

rack travel mm : 4.00  
Rated speed rpm : 1090.0  
Tolerance 1/min :  $\pm 15.0$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 11.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 4.1

Rated speed rpm : 275

CRT mm min. : 1.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.10  
Tolerance mm :  $\pm 0.10$

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.95  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 625  
rack travel mm : 14.15  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 800  
rack travel mm : 14.05  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 500  
rack travel mm : 6.75  
Tolerance mm :  $\pm 6.75$

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 625  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Rated speed rpm : 625  
rack travel mm : 8.70  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 275  
rack travel mm : 10.05  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 570  
rack travel mm : 12.50  
Tolerance mm :  $\pm 0.20$

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 20.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 30.00$

#### LOW IDLE

Rated speed rpm : 325.0  
Rack travel in mm : 4.10  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.00$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.05.90  
Test oil : ISO-4113  
  
Combination No. : 0 402 746 814  
  
Injection pump  
Pump designation : PES6P120A72ORS7135  
EP type number : 0 412 726 807

Governor  
Governor design. : RQV325...850PA848  
                  : -1K  
Governor no. : 0 421 815 169

Cust. part No. : 3136C5173P6

---

Customer-spec. information  
Customer : MACK TRUCKS  
Motor : E6 300 4VH  
Power KW : 224.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40.0  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity  
min. l/h : 165.0  
Tolerance l/h : ± 5.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2  
                  : - 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## EASIC SETTING

Rated speed rpm : 850

---

Rack travel in mm : 12.95  
Tolerance mm : ± 0.05

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Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.00

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Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.00

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.00

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.00

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.00

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 2.95  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 850  
guide sleeve  
travel mm : 6.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

control lever  
position degree : -1

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.00

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.00

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.00

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 56.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 905.0  
Tolerance 1/min :  $\pm$  5.0

rack travel mm : 4.00  
Rated speed rpm : 1040.0  
Tolerance 1/min :  $\pm$  15.0

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1100

##### LOW IDLE

control lever  
position degree : 11.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 4.6

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325  
rack travel mm : 4.60  
Tolerance mm :  $\pm 0.10$

---

TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.95  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 700  
rack travel mm : 13.40  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 600  
rack travel mm : 13.60  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 500  
rack travel mm : 6.55  
Tolerance mm :  $\pm 6.55$

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 900  
rack travel mm : 13.60  
Tolerance mm :  $\pm 0.10$

MEASUREMENT

Rated speed rpm : 600  
rack travel mm : 10.10  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 250  
rack travel mm : 10.95  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 475  
rack travel mm : 12.80  
Tolerance mm :  $\pm 0.20$

---

FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.00  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.00

---

Aneroid pressure  
hPa : )

---

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.00$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.10  
Tolerance mm :  $\pm 0.20$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 20.00$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 30.00$

---

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.00  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.00$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 5.00$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

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End of test specification sheet